1 Choose the correct answer from the given ones :

1 If $x > 3$, then $-x$ .....

(a) < 3 (b) > -3 (c) < -3 (d) $< \frac{-1}{3}$

2 The median of the values : 34 , 23 , 25 , 40 , 22 , 4 is .....

(a) 22 (b) 23 (c) 24 (d) 25

3 If the point (a , 1) satisfies the relation $x + y = 5$, then a = ...

(a) 1 (b) -4 (c) 4 (d) 5

4 If the mode of the values 4 , 11 , 8 , 2 x is 4 , then x = ...

(a) 2 (b) 4 (c) 6 (d) 8

5 If the lower limit of a set is 4 and the upper limit is 8 , then its centre is .....

(a) 2 (b) 4 (c) 6 (d) 8

6 The solution set of the equation : $x(x^2 - 1) = 0$, $x \in \mathbb{R}$ is .....

(a) $\{0\}$ (b) $\{1\}$ (c) $\{-1\}$ (d) $\{0 , -1 , 1\}$

7 The solution set of the equation $x^2 + 9 = 0$ in $\mathbb{R}$ is .....

(a) $\varnothing$ (b) $\{-3\}$ (c) $\{3\}$ (d) $\{3 , -3\}$

8 If (2 , 5) satisfies the relation $3x + y = c$, then c = ...

(a) 1 (b) -1 (c) 11 (d) -11

9 $\mathbb{Q} \cup \mathbb{Q}'$ = ...

(a) $\varnothing$ (b) 0 (c) $\mathbb{R}$ (d) $\mathbb{Z}$

10 The slope of any line parallel to x-axis equals .....

(a) 1 (b) undefined (c) -1 (d) zero

11 If the mode of the values $5 , 8 , 6 + x , 9$ is 9 , then $x =$ .....

(a) 5 (b) 6 (c) 3 (d) 8

12 $2 \in$ .....

(a) $]-1 , \infty[$ (b) $]2 , 5[$ (c) $]-\infty , 1[$ (d) $\{22\}$

13 $\sqrt{25} - \sqrt[3]{-125} =$ .....

(a) zero (b) 10 (c) 5 (d) ± 5

14 The multiplicative inverse of $\frac{\sqrt{2}}{6}$ is .....

(a) $\sqrt{2}$ (b) $2\sqrt{2}$ (c) $3\sqrt{6}$ (d) $3\sqrt{2}$

15 $]3 , 5[\cup \{3 , 5\} =$ .....

(a) $]3 , 5[$ (b) $\{3 , 5\}$ (c) $[3 , 5]$ (d) $[3 , 5[$

16 A $(2 , 5)$, B $(3 , 7)$, then the slope of $\overleftrightarrow{AB} =$ .....

(a) $\frac{1}{2}$ (b) 2 (c) -2 (d) 5

17 The mean of the values $2 , 8 , 6 , 4$ is .....

(a) 3 (b) 4 (c) 5 (d) 6

18 If the order of the median of a set of values is the fifth , then the number of these values is .....

(a) 6 (b) 10 (c) 11 (d) 9

19 If $x = 3 + \sqrt{3}$ and $y = 3 - \sqrt{3}$, then $x - y =$ .....

(a) $6\sqrt{3}$ (b) -6 (c) $\sqrt{6}$ (d) $2\sqrt{3}$

20 The mode for the values $3 , 5 , 3 , 4 , 3$ is .....

(a) 3 (b) 4 (c) 5 (d) 12

21 The S.S. of the inequality : $-x > 3$ in $\mathbb{R}$ is .....

(a) $\{-3\}$ (b) $]3 , \infty[$ (c) $]-\infty , 3[$ (d) $]-\infty , -3[$

22 If $(a , 4)$ satisfies the relation $x - y = -1$, then the value of a is .....

(a) $\sqrt{3}$ (b) 5 (c) 27 (d) 3

23 $[2 , 7] -]2 , 7[=$ .....

(a) $]2 , 7]$ (b) $[2 , 7[$ (c) $\{2 , 7\}$ (d) $[2 , \infty[$

24 If the radius length of a sphere is 6 cm. , then its volume is ..... π cm^3.

(a) 6 (b) 36 (c) 72 (d) 288

25 The order of the median of 5 , 2 , 3 , 9 , 7 , 1 , 6 is .....

(a) 9 (b) 5 (c) 4 (d) 2

26 Which of the following ordered pairs satisfies the relation $2x + y = 5$?

(a) $(-1 , 3)$ (b) $(1 , 3)$ (c) $(3 , 1)$ (d) $(2 , 2)$

27 If $x < \sqrt{15} < x + 1$, $x \in \mathbb{Z}$, then $x =$ .....

(a) 3 (b) 4 (c) 5 (d) $\varnothing$

28 The ordered pair that satisfies the relation : $3x - y = 1$ is .....

(a) $(0 , 5)$ (b) $(-1 , 2)$ (c) $(1 , 2)$ (d) $(2 , 1)$

29 The cube whose volume is 8 cm^3. , the area of one of its faces is ..... cm^2.

(a) 4 (b) 8 (c) 16 (d) 64

30 The S.S. in $\mathbb{R}$ for the equation : $x^3 + 8 = 0$ is .....

(a) $\{4\}$ (b) $\{2\}$ (c) $\varnothing$ (d) $\{-2\}$

31 If $(2k , k)$ satisfies the relation $2x + y = 15$, then $k =$ .....

(a) 1 (b) 2 (c) 3 (d) 4

32 The conjugate of the number $2-\sqrt{3}$ is .....

(a) $\sqrt{3}-2$ (b) $2-\sqrt{3}$ (c) $\sqrt{2}-3$ (d) $2+\sqrt{3}$

33 $[0\ ,5] \cup [3\ ,8[=$ .....

(a) $]3\ ,5]$ (b) $[3\ ,5]$ (c) $[0\ ,8]$ (d) $[0\ ,8[$

34 **2 Complete :**

$[1\ ,5] \cap]-2\ ,3] =$ .....

35 $\sqrt{4} = \sqrt[3]{\text{.....}}$

36 The slope of the straight line which passes through A $(2\ ,-5)$, B $(3\ ,-2)$ is .....

37 The point $(3\ ,$ .....$)$ satisfies $2x + y = 10$

38 A cube whose volume is 8 cm^3 , then the sum of lengths of all its edges is .....

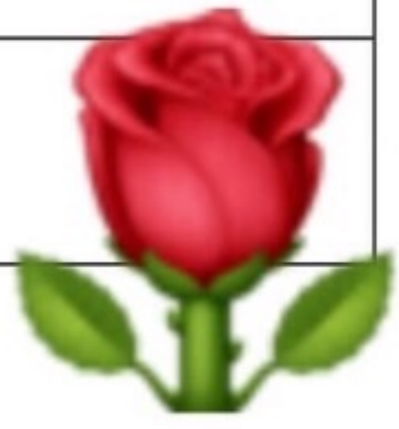
39 If the lower boundary of a set is 10 and the upper boundary is x and its centre is 15 , then $x =$ .....

40 If the volume of a sphere $= 36\pi\ cm^3$, then its diameter length = ... cm.

41 The slope of any line parallel to y-axis is .....

42 The median of the values 3 , 7 , 6 , 9 , 2 is .....

43 The S.S. of the equation : $(x^2+3)(x^3+1)=0$ is ..... , $x \in \mathbb{R}$



44	If $x = \frac{3}{\sqrt{5}-\sqrt{2}}$ and $y = \sqrt{5}-\sqrt{2}$, **prove that :** x and y are two conjugate numbers.
45	**Prove that :** $\sqrt[3]{128}+\sqrt[3]{16}-2\sqrt[3]{54}=0$
46	**Find the value of :** $\sqrt{18}+\sqrt[3]{54}-3\sqrt{2}-\frac{1}{2}\sqrt[3]{16}$
47	**Find the S.S. of the inequality :** $-2<3x+7\leq 10$ in $\mathbb{R}$, then represent the interval of solution on the number line.
48	**Find the S.S. for each of the following inequalities in $\mathbb{R}$, in the form of an interval , then represent the S.S. on the number line :** 1 $5x-3<2x+9$ 2 $1\leq 3-2x<5$
49	**Reduce to the simplest form :** $2\sqrt{18}+\sqrt{50}+\frac{1}{3}\sqrt{162}$
50	**Find the solution set in $\mathbb{R}$ for :** $3x-4\leq 5$ and represent it on the number line.
51	If $x = \frac{2}{\sqrt{7}-\sqrt{5}}$, $y = \sqrt{7}-\sqrt{5}$, **find :** $(x+y)^2$
52	The volume of a sphere is 562.5π cm^3 , find its surface area.
53	If $A =]-\infty, 3[$, $B = [-1, 5]$ **, find the following using the number line :** 1 $A \cap B$ 2 $A - B$

54	**Find in the simplest form :** $2\sqrt{18}+\sqrt{50}-\sqrt{162}$
55	**Represent graphically the relation :** $y = 2 - x$
56	**If** $X =]-\infty , 1[$ **and** $Y = [-2 , 4[$ **, find each of the following as an interval using the number line :** 1 $X \cup Y$ 2 $X \cap Y$ 3 $X - Y$ 4 $\grave{X}$
57	If $x = \sqrt{7}+\sqrt{5}$, $y = \frac{2}{x}$, find the value of $\frac{x+y}{xy}$ in the simplest form.
58	**Find in** $\mathbb{R}$ **the S.S. of the following inequality :** $-1 \leq 3 - 2x < 5$, then represent the interval of solution on the number line.
59	**Find the solution set in** $\mathbb{R}$ **:** $8x^3 + 7 = 8$
60	If $x = \sqrt{6}+\sqrt{5}$, $y = \frac{1}{\sqrt{6}+\sqrt{5}}$: 1 **Prove that :** x , y are two conjugate numbers. 2 **Find :** the numerical value of $(x-y)^2$
61	Graph the relation $y + 3x = 6$ and find the slope of the straight line.
62	Find the volume of the right circular cylinder whose diameter length of its base is 10 cm. and its height is 7 cm. $\left(\pi = \frac{22}{7}\right)$

63 A right circular cylinder whose height is 8 cm. and its volume is 72π cm^3. Find the length of the radius of its base.

64 **Find the solution set in $\mathbb{R}$:**

$3 - 2x \leq 7$

$x - 1 < 3x - 1 \leq x + 1$

65 The volume of a cylinder is 1540 cm^3. , if its height is 10 cm. , find its diameter length. $\left(\pi = \frac{22}{7}\right)$

66 **Prove that :**

The points A , B and C are collinear where A (1 , 1) , B (– 5 , – 11) and C (4 , 7)

67 Represent graphically the relation $y = x + 2$ and if (– 4 , a) satisfies the relation , find the value of a

68 **Find the arithmetic mean of the following distribution :**

Sets	5 –	15 –	25 –	35 –	45 –	Total
Frequency	4	5	6	3	2	20

69 **Find the solution set of each of the following equations in $\mathbb{Q}$:**

1 $2x^3 - 1 = 53$ 2 $(5x - 3)^3 = 8$

70 **Find the mode of the following distribution :**

The Set	2 –	6 –	10 –	14 –	18 –	22 –	26 –	Total
Frequency	3	5	8	10	7	5	2	40

FIRST: ALGEBRA

(1)	$\sqrt{16} + \sqrt[3]{-64}$ = ...	"0"
(2)	If $\sqrt[3]{x} = -\sqrt{25}$, then x = ...	"-125"
(3)	$\sqrt[3]{27} = \sqrt{.....}$	"9"
(4)	If $x^3 = 64$, then $\sqrt{x}$ = ...	"2"
(5)	If $\sqrt[3]{x} = 4$, then $\sqrt{x}$ = ...	"8"
(6)	If $\|x\| = 8$, then $\sqrt[3]{x}$ = ...	"±2"
(7)	$\sqrt[3]{x^6} = \sqrt{.....}$	"x^4"
(8)	The S.S. of the equation: $x^2+4=0$ in Q is	"∅"
(9)	If $\frac{x}{2} = \frac{4}{x^2}$, then x = ...	"2"
(10)	$\sqrt{25} - \sqrt[3]{-125}$ = ...	"10"
(11)	$\sqrt[3]{125}$ + ... = 7	"2"
(12)	If $\sqrt[3]{x+1} = 3$, then x = ...	"26"
(13)	If $\sqrt{x-2} = 4$, then $\frac{1}{2}x$ = ...	"9"
(14)	If $x^2 - 1 = 15$, then x = ...	"±4"
(15)	If $\sqrt[3]{x} - 2 = 1$, then x = ...	"27"
(16)	The edge length of a cube whose volume 216 cm^3 is ..... cm	"6"
(17)	The S.S. of the equation: $(x+3)^3 = 64$ in Q is	"{1}"

(18)	The S.S. of the equation: $(2x+1)^3 - 7 = 20$ in Q is	"{1}"
(19)	If $x = \sqrt[3]{\sqrt[3]{512}}$, then x = ...	"2"
(20)	Which of the following numbers is irrational: $\sqrt{\frac{1}{4}}$, $\sqrt[3]{8}$, $\sqrt{\frac{4}{9}}$, $\sqrt{2}$	"$\sqrt{2}$"
(21)	From the following numbers, the irrational number that lies between 2 and 3 is ..... $\sqrt{10}$, $\sqrt{7}$, 2.5 , $\sqrt{2}$	"$\sqrt{2}$"
(22)	If $x \in Z^+$ and $x < \sqrt{26} < x+1$, then x = ...	"5"
(23)	The area of square of side length $\sqrt{3}$ cm is ..... cm^2	"3"
(24)	The side length of a square whose area 10 cm^2 is a number $\in$ ..... (N , Z , Q , Q')	"Q"
(25)	If $x \in Z^+$ and $x < \sqrt[3]{37} < x+1$, then x = ...	"3"
(26)	If $x \in Z^+$ and $x+1 < \sqrt{10} < x+2$, then x = ...	"2"
(27)	If $x \in Z$ and $x < -\sqrt{17} < x+1$, then x = ...	"-5"
(28)	If $x \in Z$ and $x < \lvert-\sqrt{35}\rvert < x+1$, then x = ...	"5"
(29)	The S.S. of the equation: $(x^3+5)(x^2-3)=0$ in Q' is	"$\{\sqrt{3}, -\sqrt{3}, \sqrt[3]{-5}\}$"
(30)	$Q \cup Q'$ = ...	"R"
(31)	$Q \cap Q'$ = ...	"$\varnothing$"
(32)	R - Q = ...	" Q' "
(33)	R - Q' = ...	"Q"

(34)	$R^+ \cap R^-$ = ...	"$\varnothing$"
(35)	$R^+ \cup R^-$ = ...	"R^*"
(36)	$R^+ - R^*$ = ...	"{0}"
(37)	The S.S. of $x^2 + 1 = 0$ in R is	"$\varnothing$"
(38)	The S.S. of the equation: $(x^2+5)(x^2-3)=0$ in R is	"$\{\sqrt{3},-\sqrt{3}\}$"
(39)	The S.S. of the equation: $x\,(x^2-1)=0$ in R is	"{0,1,-1}"
(40)	The S.S. of the equation: $(x-2)^2 - 1 = 15$ in R is	"{6,-2}"
(41)	The set of real number as an interval	"]-∞,∞["
(42)	The set of positive real number as an interval is	"]0,∞["
(43)	The set of negative real number as an interval is	"]-∞,0["
(44)	The set of non-negative real number as an interval is	"[0, ∞["
(45)	3 ..... [3,5] ($\in$ or $\notin$)	"$\in$"
(46)	[-1,5] -]-1,5[=	"{-1,5}"
(47)	[-1,5] – {-1,5} = ...	"]-1,5["
(48)	[-1,5] – [-1,5] = ...	"$\varnothing$"
(49)	[-1,5] ∩]-1,5[=	"]-1,5["
(50)	$R^+ \cap$ [-1,3] = ...	"]0,3]"
(51)	{8,9,10} -]8,10] = ...	"{8}"

(52)	$Z^+ \cap [-1,5]$ = ...	"{1,2,3,4,5}"
(53)	If $x \in [-1,5]$, then $x^2 \in$	"[0,25]"
(54)	The sum of all real numbers in the interval [-80,80] is	"Zero"
(55)	If X = [-1,3] and Y = [0,5], find using the number line: (a) $X \cap Y$ = ... (b) $X \cup Y$ = ... © X - Y = ...	"[0,3]" "[-1,5]" "[-1,0["
(56)	If X =]-∞,3] and Y =]-1,5], find using the number line: (a) $X \cap Y$ = ... (b) $X \cup Y$ = ... © X' = ...	"]-1,3]" "]-∞,5]" "]3,∞["
(57)	$\sqrt{7} + \sqrt{7}$ = ...	"$[2\sqrt{7}]$"
(58)	$\left(2\sqrt[3]{5}\right)^3$ = ...	"40"
(59)	The additive inverse of $\frac{6}{\sqrt{3}}$ is	"$[-2\sqrt{3}]$"
(60)	The additive inverse of $\sqrt{3} - \sqrt{7}$ is	"$[\sqrt{7} - \sqrt{3}]$"
(61)	The multiplicative inverse of $\frac{\sqrt{2}}{6}$ is	"$[3\sqrt{2}]$"
(62)	If $X = \sqrt{2} + 5$ and $Y = \sqrt{2} - 5$, then $(X + Y)^2$ =.....	"8"
(63)	If $X^2 = (2\sqrt{3} - \sqrt{7})(2\sqrt{3} + \sqrt{7})$, then X = ...	"$\pm\sqrt{5}$"
(64)	If $X = \sqrt{5} + \sqrt{3}$ and $Y = \sqrt{5} - \sqrt{3}$, then XY=.....	"2"
(65)	The conjugate of $\sqrt{2} - \sqrt{7}$ is	"$\sqrt{2} + \sqrt{7}$"

(66)	If $x = \frac{\sqrt{6}}{\sqrt{2}}$, then x^{-1} = ...	"$\frac{\sqrt{3}}{3}$"
(67)	$\sqrt{5}$, $2\sqrt{5}$, $3\sqrt{5}$, $4\sqrt{5}$, ... (in the same pattern)	"$5\sqrt{5}$"
(68)	If $2\sqrt{27} - 2\sqrt{48} = x\sqrt{3}$, then x = ...	"-2"
(69)	If $a^x = 6$ and $a^{-y} = \sqrt{3}$, then a^{x+y} = ...	"$2\sqrt{3}$"
(70)	If $\sqrt{x} = 3 + \sqrt{2}$, then x = ...	"$11 + 6\sqrt{2}$"
(71)	Half of $\sqrt{28}$ is	"$\sqrt{7}$"
(72)	Simplify: $2\sqrt{5} + 4\sqrt{20} + 5\sqrt{\frac{1}{5}}$	"$9\sqrt{5}$"
(73)	If $x = \sqrt{5} + \sqrt{3}$ and $y = \sqrt{5} - \sqrt{3}$, find the value of $x^2 + 2xy + y^2$.	"20"
(74)	Simplify: $\sqrt{50} - \sqrt{18} + \sqrt{32}$	"$6\sqrt{2}$"
(75)	If $x = \sqrt{5} + 2$ and $y = \sqrt{5} - 2$, find the value of $\frac{x + y}{xy}$.	"$2\sqrt{5}$"
(76)	Simplify: $2\sqrt{18} - \sqrt{50} + \frac{1}{3}\sqrt{162}$	"$\sqrt{2}$"
(77)	If $x = \sqrt{5} + \sqrt{2}$ and xy = 3, find the value of $x^2 - 2xy + y^2$	"8"
(78)	If $x = \frac{4}{\sqrt{7} - \sqrt{3}}$ and $y = \sqrt{7} - \sqrt{3}$, (a) Prove that x and y are conjugate. (b) Find the value of xy and $(x+y)^2$.	"$x = \sqrt{7} + \sqrt{3}$" "4" "28"
(79)	If $x = \sqrt{5} + \sqrt{3}$ and $2y^{-1} = \sqrt{5} + \sqrt{3}$, find the value of $x^2 - y^2$.	"$4\sqrt{15}$"
(80)	If $x^2 - y^2 = 60$ and $x+y=5\sqrt{6}$, then x-y = ...	"$2\sqrt{6}$"

(81)	The area of rectangle whose dimensions are $(\sqrt{3}+1)$cm and $(\sqrt{3}-1)$cm is ..... cm^2.	"2"
(82)	Simplify: $\sqrt{8}+\sqrt{75}-\frac{1}{2}\sqrt{12}-4\sqrt{\frac{1}{2}}$	"$4\sqrt{3}$"
(83)	If $y=\sqrt{2+\sqrt{3}}$, then y^4-2y^2+1 = ...	"$4+2\sqrt{3}$"
(84)	The nearest integer to $\sqrt[3]{-28}$ is	"-3"
(85)	$\pi \in$ ..... (Q , Q' , Z , N)	"Q"
(86)	If $2x=\sqrt{12}$, then x = ...	"$\sqrt{3}$"
(87)	The slope of vertical line is	"undefined"
(88)	The slope of horizontal line is	"0"
(89)	The volume of the cuboid whose dimensions are $\sqrt{2}$ cm, $\sqrt{3}$ cm and $\sqrt{6}$ cm is ..... cm^3.	"6"
(90)	If (k,3) satisfies the relation x+y=1, then k=...	"-2"
(91)	If (3k,2k) lies on the straight line x-3y=9, then k = ...	"-3"
(92)	The volume of a cube is $27cm^3$, then the area of its face = ... cm^2.	"9"
(93)	The relation 8x+3y=24 represented by a straight line intersects y-axis at the point	"(0,8)"
(94)	The point that satisfies the relation x+2y=5 is (1,.....)	"2"
(95)	The slope of the straight line which perpendicular to y-axis is	"0"
(96)	The slope of the straight line which perpendicular to x-axis is	"undefined"

(97)	If A(3,2) and B(x,1) and the slope of $\overleftrightarrow{AB}$ = 1, then x = ……	"2"
(98)	If the volume of a sphere is $\frac{9}{16}\pi$ cm^3, then the length of its diameter = …… cm	"$\frac{3}{2}$"
(99)	If (2,-5) satisfies the relation 3x-y+c=0, then c = ……	"-11"
(100)	The cube whose volume 8 cm^3, the sum of all its edges = …… cm.	"24"
(101)	A cube of volume 1 cm^3, its lateral area = … cm^2	"4"
(102)	The slope of straight line which passes through the two points (3,2) and (4,2) is ……	"0"
(103)	$\sqrt[3]{2} + \sqrt[3]{2} = \sqrt[3]{\ldots}$	"16"
(104)	The volume of a sphere of diameter length 6cm is …… π cm^3.	"36"
(105)	The S.S. of the inequality: $\sqrt{5}x \leq 5$ in R is ……	"$]-\infty, \sqrt{5}]$"
(106)	The S.S. of the inequality: $-2x \leq 0$ in R is ……	"$[0,\infty[$"
(107)	If $1 \leq x \leq 4$, then $2x - 1 \in$ ……	"[1,7]"
(108)	The intersection point of the two straight lines x=0 and y=0 is ……	"(0,0)"
(109)	The intersection point of the two straight lines x-1=0 and y+4=0 is ……	"(1,-4)"
(110)	A sum of all edge lengths of a cube is 48 cm, then the area of its face = …… cm^2.	"16"
(111)	In the relation y = 3x + 4, if x=1, then y = ……	"7"
(112)	If the area of a sphere is 4π cm^2, then its radius length = …… cm.	"1"

(113)	The S.S. of the equation: $\sqrt{3}x - 2 = 1$ in R is ……	"$\{\sqrt{3}\}$"
(114)	Simplify: $\frac{1}{2}\sqrt{24} - 3\sqrt{\frac{2}{3}}$	"0"
(115)	The volume of a cube is $5\sqrt{5}\,cm^3$, its lateral area is …… cm^2.	"20"
(116)	The lateral area of the cylinder = ……	"$2\pi rh$"
(117)	The total area of the cylinder = ……	"$2\pi r(h+r)$"
(118)	The mean of the values: 3, 5 and 7 is ……	"5"
(119)	If the order of median of values is the fourth, then the number of these values is ……	"7"
(120)	If the mode of the values: 4,11,8 and 2x is 4, then x = ……	"2"
(121)	If the mean of 6 values is 5, then the sum of these values = ……	"30"
(122)	If the mode of the values: 5,7,8 and x^3 is 8, then 3x = ……	"6"
(123)	If the mode of the values: 5,9,5,x-2 and 9 is 9, then x = ……	"11"
(124)	If the intersection point of the ascending and descending cumulative frequency curves is (31,50), then the sum of the frequencies = …… and the mode is ……	"62" "50"
(125)	The median of values: 34,23,25,40,21,4 is ……	"24"
(126)	The center of the set whose upper limit 8 and its lower limit 4 is ……	"6"
(127)	If the lower limit of a set is 4 and its center is 6, then its upper limit is ……	"8"

(128)	If the mean of values: 18,23,29,2k-1,k is 18, then k = ...	"7"
(129)	Mode, mean and median are called ..... measurements.	"central tendency"
(130)	The mean of frequency distribution =.....	" $\frac{\sum x \times f}{\sum f}$ "
(131)	If the order of median of a frequency distribution is 30, then the sum of these frequencies is	"60"
(132)	If the mean of values: 4,2,x+1 is 4, then x=.....	"5"

Essay Problems

(133)	If 2x+2y=10, then the arithmetic mean of x and y is	"2.5"
(134)	If the order of median of values is 5^{th} and 6^{th}, then the number of these values is	"10"
(135)	Simplify: $2\sqrt{5}\left(\sqrt{5}-2\right)+\sqrt{20}-10\sqrt{\frac{1}{5}}$	"$10-4\sqrt{5}$"
(136)	Simplify: $\sqrt[3]{128}+\sqrt[3]{16}-2\sqrt[3]{54}$	"0"
(137)	Simplify: $\sqrt{125}-\sqrt[3]{2}+\frac{1}{2}\sqrt[3]{16}+\sqrt{20}$	"$7\sqrt{5}$"
(138)	Find the S.S. of the inequality: $2x + 3 \leq 1$ in R, and represent it on the number line.	"$]-\infty,-1]$"
(139)	Find the S.S. of the inequality: $1< 2x + 3 \leq 9$ in R, and represent it on the number line.	"]-1,3]"
(140)	Find the S.S. of the inequality: $9 - 2x < 7$ in R, and represent it on the number line.	"$]1,\infty[$"
(141)	Find the S.S. of the inequality: $7x+3 < 6x+5$ in R, and represent it on the number line.	"$]-\infty,2[$"

(142)	Find the S.S. of the inequality: $2x+3 \leq 5x+3 \leq 2x+9$ in R, and represent it on the number line.	"[0,2]"
(143)	Find the S.S. of the inequality: $16 \geq 3x+7 \geq -2$ in R, and represent it on the number line.	"[-3,3]"
(144)	A right circular cylinder, its hieght equal to its radius length, its volume is 216π cm^3. Find its height.	"6 cm"
(145)	A sphere of volume 36π cm^3. Find its surface area in the term of π.	"36π cm^2"
(146)	A metallic sphere its diameter is 6 cm, was melted and converted to a right circular cylinder the radius length of its base is 3 cm. Find the height of the cylinder.	"4 cm"
(147)	A right circular cylinder, the radius length of its base is 5 cm and its height is 7 cm. Find the volume of the cylinder and its lateral area.	"550 cm^3" "220 cm^2"
(148)	A right circular cylinder of volume 54π cm^3, and its height equals to the diameter length of its base. Find its lateral area in term of π.	"36π cm^2"
(149)	Find three ordered pairs satisfies the relation: $x + y = 5$ and represent it graphically.	(0,5) (5,0) (1,4)
(150)	If the slope of the straight line which passes throught the points (3,-1) and (7,k) is $\frac{3}{4}$, find the value of k.	"2"
(151)	If the straight line that passes through the points (3,4) and (2,k) is parallel to x-axis, then find the value of k.	"4"
(152)	Find the slope of $\overleftrightarrow{AB}$, where A(-1,3) and B(2,5). Is C(8,1) lies on $\overleftrightarrow{AB}$?	"$\frac{2}{3}$"

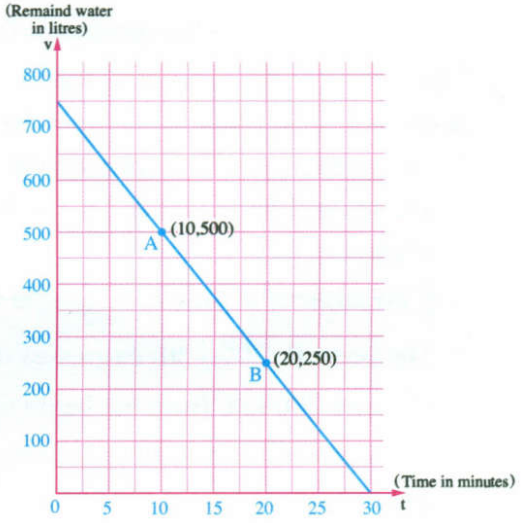
(153)	If (2k,k) satisfies the relation x+y=15, find the value of k.	
(154)	Prove that A(4,-3), B(-6,7) and C(5,-4) are collinear.	
(155)	If (k,3) lies on the stright line that represents the relation kx+y=12, find the value of k.	"±3"
(156)	If (a,2a) satisfies the relation y=3x-1, find the value of a.	"1"
(157)	If (-3,2) satisfies the relation 3x+by=1, find the value of $\sqrt{b+4}$.	"3"
(158)	If A(1,1), B(2,2) and C(3,k) are collinear, find the value of k.	"3"
(159)	Represent graphically the relation x-4y=4	
(160)	Represent graphically the relation y=2x+1	
(161)	From the following frequency distribution: (a) Find the value of k. (b) Calculate the arithmetic mean.	"6" "27"

Sets	5-	15-	25-	35-	45-	Total
frequency	4	5	k	3	2	20

(162)

A tank of water is filled with water completely. A tap is opened below the tank to empty it , the opposite graph represents the relation between the time (t) in minutes and the amount of water remained in the tank (v) in litres :

1. What is the greatest capacity of the tank ?
2. What is the time needed to empty the tank?
3. What is the amount remained in the tank after 20 minutes ?
4. What is the rate of emptying the tank ?



2nd prep FINAL REVISION

AL GEBRA

(1)Complete each of the following:

(1) The S.S of the equation: $(x^2 + 3)(x^3 + 1) = 0$ is ....., $x \in R$

(2) If the lower boundary of a set is 10 and the upper boundary is x and its centre is 15, then x = ...

(3) $]-2, 2] \cup \{-2, 0\}$ = ...

(4) The additive inverse of the number: $-\sqrt{3} - \sqrt{5}$ is .....

(5) The conjugate of the number $\frac{2\sqrt{5} - 3\sqrt{2}}{\sqrt{2}}$ is .....

(6) If the volume of a sphere is $\frac{9}{2}\pi\ cm^3$, then its diameter length is ..... cm

(7) The mode for the numbers: 3, 5, 3, 4, 3 is .....

(8) The solution set of the equation: $x^2 + 9 = 0$ in R is .....

(9) The median of the values: 2, 3, 5, 7, 9 is .....

(10) $|\sqrt[3]{27}| = \sqrt{.....}$

(11) The relation $3x + 7y = 14$ is represented by a straight line intersects the y-axis at the point .....

(12) The centre of the set whose lower boundary is 2 and its upper boundary is 6, is .....

(13) $[3, 7] - \{3, 7\}$ = ...

(14) The S.S of the inequality: $-x > 3$ in R is .....

(15) The straight line representing $x - y = 2$ cuts the x-axis at x = ...

(16) If the mode of the values 16, 8, $x + 1$, 8 and 16 is 8, then x = ...

(17) If (a , 3) satisfies the relation $2x - y = 7$, then a = ...

(18) The point of intersection of the ascending and descending cumulative frequency curves determines ..... on the set-axis

(19) The volume of a sphere whose diameter length is 6 cm. equals ..... $\pi\ cm^3$

(20) The slope of the straight line parallel to x-axis is .....

(21) A cube of edge length 3 cm, then its volume = ... cm^3

(22) If the lowest limit of a set is 8 and its upper limit is 14, then its centre is .....

(23) The slop of the straight line passing through (2 , 3) and (5 , -1) is .....

(24) If $x < \sqrt{19} < x + 1$, $x \in$ Z, then x = ...

(25) If the slope of $\overleftrightarrow{AB}$ equals the slope of $\overleftrightarrow{BC}$, then A , B and C are .....

(26) If $x \in [-2 , 3]$, then $x^2 \in$ [..... , ...]

(27) If the order of the median of a set of values is fourth, then the number of these values is .....

(28) If (-1 , 5) satisfies the relation $3x + k y = 7$, then k = ...

(29) [2 , 6] $-$ {2 , 6} = ...

(30) The lateral area of a cube whose volume is 216 cm^3. equals .....

(31) $(\sqrt{3} + \sqrt{7})^2$ = ... (in the simplest form)

0 1 0 6 1 2 7 7 7 4 4

(32) If $2 < x < 5$, then $3x - 1 \in$ .....

(33) The multiplicative inverse of the number $\frac{3}{\sqrt{3}}$ is $\frac{.....}{\sqrt{3}}$

(34) If A = (3 , 2) , B = (3 , -1) ,then the slope of the straight line $\overleftrightarrow{AB}$ is .....

(35) The perimeter of the rectangle whose dimensions are $(3 - \sqrt{5})$ cm. and $(3 + \sqrt{5})$ cm. equals .....

(36) If $\frac{1}{x} = \sqrt{5} - 2$, then the value of x in the simplest form is .....

(37) $2x^2y \times$ ..... $= 12x^3y$

(38) $(2x - 3)(3x + 5) = 6x^2 +$ ..... $-$ .....

(39) The square whose area 10 cm^2. Its side length is ..... cm

(40) $\sqrt[3]{x^6} = \sqrt{.....}$

(41) $[-2 , 2[\cup \{-2 , 0\} =$ .....

(42) The algebraic term $5x^2$ is of ..... degree

(43) If the ages of 5 students are 13, 15, 16, 14 and 17 years old, then the arithmetic mean of their ages equals ..... years

(44) The slope of any line parallel to x-axis is .....

(45) The irrational number lying between -2 and -1 is .....

(2)Choose the correct answer:

(1). If the radius length of a sphere is 6 cm, then its volume is .....

(a) $6\pi\ cm^3$ (b) $36\ \pi\ cm^3$ (c) $72\ \pi\ cm^3$ (d) $288\ \pi\ cm^3$

2) The arithmetic mean of the values: 27, 8, 16, 24, 6, k ,is 14 then k = ...

(a) 3 (b) 6 (c) 27 (d) 84

(3) A right circular cylinder the radius length of its base is r cm. and its height equals its diameter length, then its volume = ... cm^3

(a) πr^3 (b) πr^2 (c) $2 \pi r^3$ (d) $2 r^3$

(4) The additive inverse of the number $-\sqrt{5}$ is .....

(a) $\sqrt{5}$ (b)5 (c) $\sqrt{2}$ (d) -5

(5) The simplest form of the expression:$(\sqrt{3} - \sqrt{2})(\sqrt{3} + \sqrt{2})$ is .....

(a) $\sqrt{3}$ (b) 1 (c) $\sqrt{2}$ (d) $2\sqrt{3}$

(6) If $x > 6$, then $-x$ .....

(a) < 6 (b) > 6 (c) < -6 (d) > -6

(7) The mode of the value $\frac{1}{7}, \frac{1}{3}, \frac{1}{7}, \frac{1}{4}$ is x , then $\frac{1}{x}$ = ...

(a) 7 (b) $\frac{1}{3}$ (c) $\frac{1}{7}$ (d) 4

(8) The conjugate number of the number: $1 - \frac{11}{\sqrt{11}}$ is $\sqrt{11}$ + ...

(a) 11 (b) $\sqrt{11}$ (c) 1 (d) 10

(9) If the order pair (-1 , 3) satisfies the relation $3x - y = c$, then c = ...

(a) 7 (b) -7 (c) 6 (d) -6

(10) The cube whose volume is 8 cm^3 , the area of one face =..... cm^2

(a) 4 (b) 8 (c) 16 (d) 64

(11) $R^+ - [-2, 3[$ = ...

(a)] 0 , 3[(b) [3 , ∞ [(c)] 3 , ∞ [(d)] $-\infty$, -2[

(12) If $x = \sqrt{3} + 2$ and $y = \sqrt{3} - 2$, then (x y , x + y) .....

(a) (1 , $2\sqrt{3}$) (b) (-1 , $2\sqrt{3}$) (c) (5 , $2\sqrt{3}$) (d) (5 , 9)

(13) If the median of the values: k + 1, k + 2, k + 5, k + 4, k + 3, where k is a positive number is 13, then k = ...

(a) 2 (b) 5 (c) 10 (d) 13

(14) $\mathbb{Q} \cap \mathbb{Q}'$ = ...

(a) $\mathbb{R}$ (b) $\mathbb{R}_+$ (c) $\mathbb{R}_-$ (d) ∅

(15) If 5 x = 35, then 2 x + 1 = ...

(a) 7 (b) 15 (c) 8 (d) 71

(16) $(2\sqrt[3]{2})^3$ = ...

(a) 4 (b) 8 (c) 16 (d) 40

(17) The irrational number which lies between 3 and 4 is .....

(a) $\sqrt{13}$ (b) $\frac{1}{8}$ (c) 3.5 (d) $\sqrt{20}$

(18) If the slope of straight lime a x + b y + 1 = zero is undefined, then .....

(a) a = b (b) a = zero (c) b = zero (d) a = $-b$

(19) $\frac{1}{3}$ = ...

(a) 0.3 (b) 30 (c) 3 (d) 0.03

(20) If the lower boundary of a set is 10 and the upper boundary is x and the centre is 15 , then x = ...

(a) 10 (b) 15 (c) 20 (d) 30

(3)Answer the questions:

(1) Find the value of: $\sqrt{18} + \sqrt[3]{54} - 3\sqrt{2} - \frac{1}{2}\sqrt[3]{16}$

(2) Find the S.S of the inequality: $-2 < 3x + 7 \leq 10$ in $\mathbb{R}$, then represent the interval of solution on the number line.

(1) Find in the simplest form: $2\sqrt{18} + \sqrt{50} + \frac{1}{3}\sqrt{162}$

(2) If $x = \frac{5\sqrt{2} + 3\sqrt{5}}{\sqrt{5}}$,y = $\frac{2\sqrt{5} - 3\sqrt{2}}{\sqrt{2}}$, then the value of $x^2 + y^2$ and prove that: $\frac{x^2 + y^2}{xy} = 38$

(3) Prove that $\sqrt{5}$ lies between 2.2 and 2.3

(4) Find the total area of a right circular cylinder of volume 72 $\pi\, cm^3$ and height 8 cm.

(5) If x =] $-\infty$, 2] and Y = [-1, 5 [, Find using the number line:

(1) $X \cap Y$ (2) $X \cup Y$ (3) $X - Y$ (4) X'

(6) Prove that the points A (-1, 6) , B (1 , 2) and C (3 , -2) are collinear points.

(7) Find the S.S in $\mathbb{R}$ for: $1 \leq 3 - 2x < 5$, then represent the S.S on the number line.

(8) The volume of a circular right cylinder is 924 cm^3 . and its height is 6 cm. Find its lateral area

(9) If the volume of a sphere is 288 $\pi\ cm^3$, Find its area

(10) If $x = \sqrt{5} + \sqrt{3}$ and $y = \frac{2}{\sqrt{5} + \sqrt{3}}$, Find: $(x + y)^2$

(11) Find in the form of an interval: $x + 1 \leq 2x - 3 < x + 4$, $x \in \mathbb{R}$

(12) If $a = \sqrt{2} + 1$ and ab = 1, find the value of: $(a - b)^2$

(13) A right circular cylinder, its volume is 40 $\pi\ cm^3$. And its height equals 10 cm. Find the radius length of its base.

(14) Find three orders pairs that satisfy the relation: $x + 2y = 6$, then represent it graphically.

(15) Represent graphically the relation: y + 2 x = 5

(16) Find the value of: $\sqrt{8} - \sqrt{50} + \sqrt{32} - 2\sqrt{\frac{1}{2}}$

(17) The volume of a sphere is 36 $\pi\ cm^3$. Find the length of its diameter.

(18) Find the arithmetic mean of the following frequency distribution:

Sets	0-	4-	8-	12-	16-	Total
Frequency	4	6	12	10	8	40

(19) The following table shows a frequency distribution:

Sets	20-	30-	40-	50-	60-	70-	Total
Frequency	10	k	22	25	20	8	100

Find:

(1) The value of k

(2) The median using the two ascending and descending cumulative curves.

(3) The mode using the histogram.

[1] Complete each of the following :

1) The conjugate of the number $\frac{2\sqrt{5}-3\sqrt{2}}{\sqrt{2}}$ is ……

2) [3 , 4] - { 3 , 5 } = ……

3) $\sqrt{64} - \sqrt[3]{64}$ = ……..

4) If a lower boundary of a set is 10 and the upper boundary is x and its centre is 15 , then x = ……..

5) The additive inverse of the number : $-\sqrt{3} - \sqrt{5}$ is ……..

6) The slop of the straight line passing through (2 , 3) and (5 , -1) is ……

7) The S.S of the equation : $(x^2 + 3)(x^3 + 1) = 0$ is …., $x \in \mathbb{R}$

8) If the volume of a sphere is $\frac{9}{2}\pi$ cm^3 then its diameter length is ……..cm

9) The multiplicative inverse of the number ($\sqrt{3} + \sqrt{2}$) is ……..
(in the simplest form)

10) $]-2 , 2] \cup \{-2 , 0\}$ = …….

11) $(\sqrt{8} + \sqrt{2})(\sqrt{8} - \sqrt{2})$ = ……..

12) The cube whose volume is 8 cm^3 , then the sum of all its edge lengths = …….. cm

13) The slop of the straight line perpendicular to y-axis is …….

14) If the mode of the values 4 , 11 , 8 , 2 x is 4 then x = ……..

15) The degree of the algebraic term $3x^2y^2$ is ……..

16) $\sqrt[3]{\ldots\ldots\ldots\ldots} = \sqrt{4}$

17) If the volume of the sphere is $\frac{1}{6}\pi$ cm^3 ,then its radius length = ...

18) The slop of the straight line parallel to x-axis is ……..

19) A cube of side length 3 cm then its volume = …….. cm^3

20) The volume of a sphere whose diameter length is 6 cm = …….. π cm^3

21) If the area of one face of a cube = 9 cm^2 then its volume = ……. cm^3

22) The S.S of equation $x^3 + 8 = 0$ in $\mathbb{R}$ is ……..

23) [2 , 8 [$\cup$ { 8 } = ……..

24) If the mode of 14 , 9 , x + 5 , 9 and 14 is 9 , then x = ……..

25) [- 5 , 9] - { - 5 , 9 } = ……

26) If (k , 2 k) satisfies x + y = 15 , then k = ……

27) If the mean of the values 9 , 6 , 5 , 14 is k , then k = ……

28) If the volume of a sphere is $\frac{9}{2}\pi$ cm^3 , then its radius length = ……

29) The mode of the values 5 , 5 , 6 , 4 , 5 is ……

30) If the volume of a sphere = 36 π cm^3 , then its diameter length = …… cm

31) $(\frac{-5}{7}) \times (\frac{-7}{5})$ = ……..

32) If the sum of five numbers equals 30 , then the arithmetic mean of these numbers is …….

33) If (-1 , 5) satisfies the relation 3 x + k y = 7 , then k = ...

34) The point of intersection of the ascending and descending cumulative frequency curves determines ..... on the set-axis .

35) If (a , 3) satisfies the relation 2 x - y = 7 , then a = ...

[2] Choose the correct answer :

36) If the lower limit of a set is 4 and the upper limit is 8 , then its centre is ..... (4 , 2 , 6 , 8)

37) The median of the values : 34 , 23 , 25 , 40 , 22 , 4 is .....
(22 , 23 , 24 , 25)

38) ($2\sqrt[3]{2}$)^3 = ... (4 , 8 , 16 , 40)

39) A right circular cylinder the radius length of its base is r cm and its height equals its diameter length then its volume = ... cm^3
(πr^3 , πr^2 , $2\pi r^3$, $2r^3$)

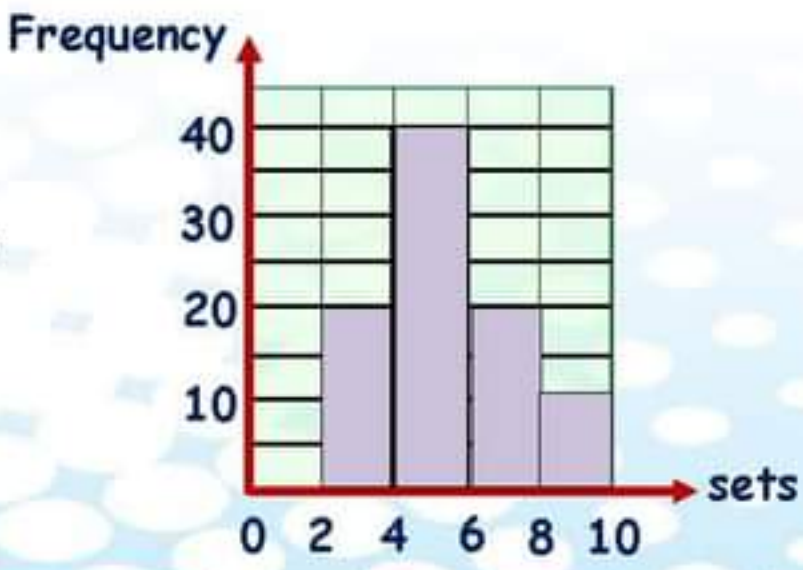
40) If the volume of a cube is 36 cm3 then the area of one of its faces is ..... (3 cm^2 , 9 cm^2 , 36 cm^2 , 54 cm^2)

41) If the point (a , 1) satisfies the relation x + y = 5 then a = ...
(1 , - 4 , 4 , 5)

42) In the opposite figure :

The value of the mode = ...

(4 , 5 , 6 , 40)



43) If the radius length of a sphere is 6 cm , then its volume is .....

(6π cm^3 , 36π cm^3 , 72π cm^3 , 288π cm^3)

44) If the arithmetic mean of the values : 27 , 8 , 16 , 24 , 6 , k is 14 , then k = ... (3 , 6 , 27 , 84)

45) The solution set of the equation : $x(x^2 - 1) = 0$ $x \in \mathbb{R}$ is .....

($\{0\}$, $\{1\}$, $\{-1\}$, $\{0, -1, 1\}$)

46) $\sqrt{3\frac{3}{8}} = \frac{3}{2}\sqrt{\frac{\ldots\ldots}{\ldots\ldots}}$ ($\frac{3}{8}$, $\frac{3}{2}$, $\frac{27}{8}$, $\frac{729}{64}$)

47) If the arithmetic mean of the values 18 , 21 , 29 , 2 k + 1 , k is 18 , then k = ... (1 , 7 , 29 , 90)

48) $\mathbb{Z}^+ \cap \mathbb{Z}^-$ = ... (zero , $\varnothing$, $\mathbb{Z}$, $\mathbb{N}$)

49) If $x = 3 + \sqrt{3}$ and $y = 3 - \sqrt{3}$, then $x - y$ = ...

($6\sqrt{3}$, -6 , $\sqrt{6}$, $2\sqrt{3}$)

50) The slop of x- axis is .....

(negative , positive , undefined , zero)

51) The multiplicative inverse of $\frac{\sqrt{3}}{6}$ is .....

($-\frac{\sqrt{3}}{6}$, $6\sqrt{3}$, $2\sqrt{3}$, $-2\sqrt{3}$)

52) The result of $(1 + \sqrt{5})(1 - \sqrt{5})$ = ...

(2 , -4 , $-2\sqrt{5}$, $2\sqrt{5}$)

53) A (2 , 5) , b (3 , 7) , then the slop of $\overleftrightarrow{AB}$ = ...

($\frac{1}{2}$, 2 , -2 , 5)

54) $\mathbb{Q} \cup \mathbb{Q}^-$ = ... ($\emptyset$, $\mathbb{Z}$, $\mathbb{N}$, $\mathbb{R}$)

55) $(\sqrt{5} + \sqrt{3})^2 (\sqrt{5} - \sqrt{3})^2$ = ... (2 , 3 , 4 , 8)

56) $2 \in$ ..... ($]-1, \infty]$, $]2, 5[$, $]-\infty, 1[$, $\{22\}$)

57) If the order of the median of a set of values is the fifth , then the number of these values is .....

(6 , 10 , 11 , 9)

58) If (-1 , 5) satisfies the relation $3x + k y = 7$, then k = ...

(7 , 4 , 3 , 2)

59) The intersection point of the ascending and descending cumulative frequency curves determines the ..... on the sets axis .

(mode , median , mean , centre)

60) The mean of the values2 , 8 , 6 , 4 is .....

(3 , 4 , 5 , 6)

61) If the lower limit of a set is 4 and the upper limit is 8 , then its centre is ..... (2 , 4 , 6 , 8)

62) $\mathbb{R}$ = ... ($[0, \infty]$, $]-\infty, \infty[$, $[0, \infty[$, $]-\infty, 0]$)

63) The conjugate of the number $\sqrt{2} - \sqrt{3}$ is .....

($\sqrt{2} + \sqrt{3}$, $\sqrt{3} - 2$, $2 - \sqrt{3}$, $-\sqrt{2} + \sqrt{3}$)

64) If $x = \sqrt{7} - \sqrt{5}$ and $y = \sqrt{7} + \sqrt{5}$, then $(x y)^3$ = ...

(4 , 6 , 8 , 9)

65) The S.S of the equation : $x2 + 3 = 0$ in R is .....

($\emptyset$, $\{-\sqrt{3}\}$, $\{\sqrt{3}\}$, $\{-\sqrt{3}, \sqrt{3}\}$)

66) If $x = \sqrt{3} + 2$ and $y = \sqrt{3} - 2$, then $(xy , x + y)$ = …….

$((1 , 2\sqrt{3}) , (-1 , 2\sqrt{3}) , (5 , 2\sqrt{3}) , (5 , 9))$

67) If the volume of a right circular cylinder is 90π cm^3 and its height is 10 cm , then the radius length of its base = ……. cm

(3 , 4.5 , 5 , 9)

68) (3 , 2) does not satisfy the relation ……..,

($y + x = 5$, $3y - x = 3$, $y + x = 7$, $x - y = 1$)

69) The solution set of the equation : $x^3 = 8$ in $\mathbb{R}$ is ……..

($\varnothing$, {2} , {-2} , {0})

70) If the median of the set of the values : k + 1 , k + 2 , k + 5 K + 4 , k + 3 where is k is a positive number is 13 , then k = …

(2 , 5 , 10 , 13)

[3] Answer the following :

71) Find the S.S. of the inequality : $-2 < 3x + 7 \leq 10$ in $\mathbb{R}$, then represent the interval of solution on the number line .

72) If $x = \frac{3}{\sqrt{5} - \sqrt{2}}$ and $y = \sqrt{5} - \sqrt{2}$, Prove that x and y are two conjugate numbers .

73) If $x = \sqrt{2 + \sqrt{3}}$, find the value of : $x^4 - 2x^2 + 1$

74) The radius length of the base of a right circular cylinder is $4\sqrt{2}$ and its height is 9 cm . Find its volume in terms of π and if its volume equal the volume of a sphere , find the radius length of the sphere .

75) The area of a square is 1089 cm2. Find the length of its diagonal

76) Reduce to the simplest form : $\frac{\sqrt{3}}{\sqrt{5}-\sqrt{3}} + \frac{\sqrt{5}}{\sqrt{5}+\sqrt{3}}$

77) Find the arithmetic mean of the following frequency distribution :

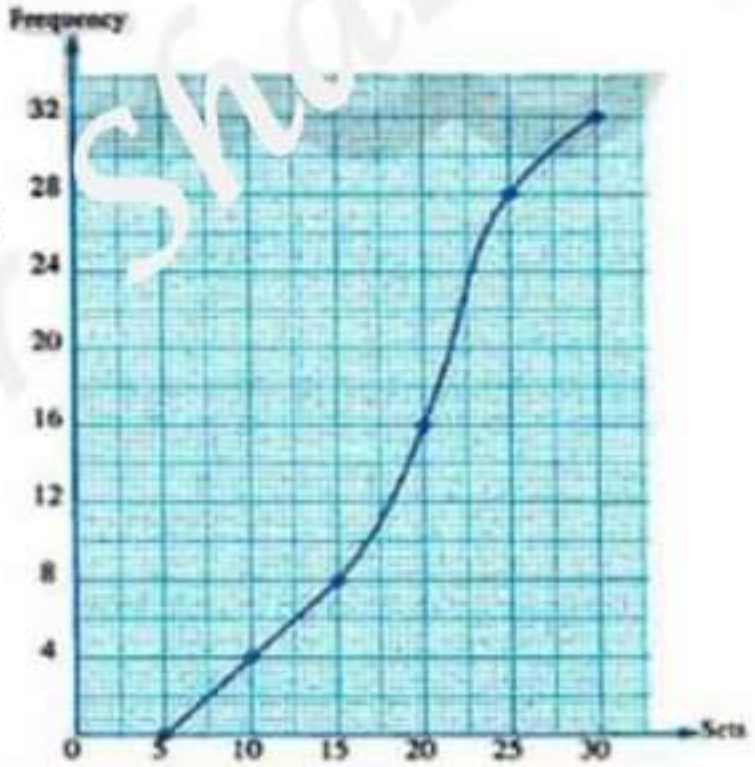
The sets	5 -	15 -	25 -	35 -	45 -	Total
Frequency	4	5	6	3	2	20

78) Find the value of : $\sqrt{18} + \sqrt[3]{54} - 3\sqrt{2} - \frac{1}{2}\sqrt[3]{16}$

79) <u>The opposite graph</u> represents the marks of 32 pupils in an exam .

<u>Complete</u> :

The median mark = ……



80) Graph the relation : $2x + 3y = 6$

if the straight line representing this relation intersects the x-axis at A and the y-axis at B , find the area of the triangle OAB where O is the origin point .

81) If $x = \sqrt{7} + \sqrt{5}$, $y = \frac{2}{\sqrt{7}+\sqrt{5}}$

(a) <u>Prove that</u> : x and y are two conjugate numbers .

(b) <u>Find</u> : xy , $(x + y)^2$

82) Simplify : $\sqrt{18} + \sqrt{50} - 2\sqrt{8}$

83) Find the arithmetic mean of the following frequency distribution :

Sets	10 -	20 -	30 -	40 -	50 -	Total
Frequency	5	15	20	25	10	75

84) If X = [-3 , 4] , Y =] 1 , ∞ [, find each of the following using the number line : (a) $X \cap Y$ (b) $X - Y$

85) Find the volume of the right circular cylinder whose diameter length of its base is 10 cm and its height is 7 cm . ($\pi = \frac{22}{7}$)

86) If $x = \sqrt{5} + \sqrt{2}$, $y = \frac{3}{x}$, then find the value of $\frac{x + y}{xy}$ in its simplest form .

87) Find three ordered pairs satisfying the relation $2x + y = 7$, represent it graphically .

88) Graph : $y + 2x = 4$. Does the point (-1 , 6) belong to the straight line ?

89) If the volume of a sphere is 288π cm^3 . find its area .

90) Find the solution set in $\mathbb{R}$ to the following inequality in the form of an interval : $x - 2 > 3$

91) Represent the relation $x + y = 3$ on the coordinate plane .

92) If $x = \sqrt{6} + \sqrt{5}$ and $y = \sqrt{6} - \sqrt{5}$, find : $(x + y)^2$

93) Simplify to the simples form : $\sqrt[3]{-16} + \frac{14}{\sqrt{7}} - \sqrt{28} + \sqrt[3]{54}$

94) Let A (2 , -1) , B (10 , 3) and C (2 , 3) , find the slope of $\overleftrightarrow{AB}$ and $\overleftrightarrow{AC}$

95) From the following frequency table with equal sets :

The Set	10 -	20 -	30 -	40 -	50 -	60 - 70	Total
Frequency	12	15	25	27	K + 4	4	100

(a) Find the value of K (b) calculate the median .

96) Prove that : $\sqrt[3]{128} + \sqrt[3]{16} - 2\sqrt[3]{54} = 0$

97) If X =] $-\infty$, 5] and Y =] 1 , 9 [Find using the number line :

(1) $X \cap Y$ (2) $X \cup Y$ (3) $X - Y$ (4) X'

98) Find the circumference of the circle whose area is 3π cm^2 .

99) The following table shows the frequency distribution of the weekly bonus of 100 workers in a factory :

Bonus in L.E	20 -	30 -	40 -	50 -	m -	70 -
No. of workers	10	k	22	26	20	8

(a) Find the value of each of k and m .

(b) Graph the frequency histogram , then find the mode value of the weekly bonus .

100) Find the height of a right circular cylinder whose height is equal to its base radius length and its volume is 72π cm^3

1) Complete the following:

1) The S.S of the equation $(x^2 + 3)(x^3 + 1) = 0$ is ..... $\in R$

2) $]-2,2] \cup \{-2,0\}$ = ...

3) If the volume of a sphere is $\frac{9}{2}\pi$ cm^3, then its diameter length is .....

4) The multiplicative inverse of the number $(\sqrt{3} + \sqrt{2})$ is ..... in simplest form.

5) The surface area of the sphere of diameter length 14 cm equal .....

6) $(\sqrt{8} + \sqrt{2})(\sqrt{8} - \sqrt{2})$ = ...

7) A cube whose volume is 8 cm^3 .,then the sum of lengths of all its edges equal .....

8) The S.S of the equation X(X^3 - 1) = 0 in $\mathbb{R}$ is .....

9) [1, 5] – { 1 , 5} = ...

10) The S.S of the equation :(x - 1)(x - 5) = 0 in $\mathbb{R}$ is .....

11) A right circular , its volume is 343 π cm^3 if its height equals its base radius length , then its height equals.....

12) The additive inverse of the number $(\sqrt{7} - \sqrt{3})$ is .....

13) The edge length of a cube is 3 cm , then the area of any one of its faces is .....

14) $\sqrt{\frac{(40)}{(13)-(12)}}$ = ... (in the simplest form)

15) $\sqrt{8} - \sqrt{2} =$ ..... $\sqrt{2}$

16) $(\sqrt{7} + \sqrt{3})^2 =$ ..... (in the simplest form)

17) If the arithmetic mean of the values 9 , 6 , 5 , 14 , K is 7 then k = ...

18)] 1, 3] ∪ [2 , 5] = ...

19) The radius of the sphere whose volume is $\frac{4}{3}\pi$ cm^3 equals .....

20) The S.S OF the equation: $x^2 + 25 = 0$ in $\mathbb{R}$ is .....

21) The square of the number $(\sqrt{5} + \sqrt{2})$ is .....

22) The slope of any line parallel to x–axis is .....

23) The slope of x-axis is .....

24) The slope of y-axis is .....

25) The slope of the straight line passing through the two points (3,5), (-3, 1) is .....

26) If (2 , 3) satisfies the relation : X + Y = K , then k = ...

27) The multiplicative inverse of $\frac{2\sqrt{3}}{6}$ in simplest form is .....

2) Choose the correct answer from the given ones:

1) If the radius length of the sphere is 6 cm , then its volume is .....

a) 6π cm^3 b) 36π cm^3 c) 72π cm^3 d) 288π cm^3

2) If the lowest boundary of a set is 10 and the upper boundary is X and its center is 15 , then X= .....

a) 10 b) 15 c) 20 d) 40

3) $(2\sqrt[3]{2})^3 =$ .....

a) 4 b)8 c)16 d) 40

4) The median of the value :34, 23, 25, 40, 22, 4 is .....

a) 22 b)23 c)24 d) 25

5) If the arithmetic mean of the value :27, 8, 16, 6, K is 14 , then K= .....

a) 3 b)6 c) 27 d) 84

If the volume of a cube is $27cm^3$,then the area of one of its faces is .....

a) $3\ cm^2$ b) $9\ cm^2$ c) $36\ cm^2$ d) $54\ cm^2$

6) If the mode of the set of value 4, 11 , 8 , 2X is 4 then X = ...

a) 2 b) 4 c) 6 d) 8

7) If the arithmetic mean of the set of values 18 , 23 , 29 , 2K -1 , K is 18 then K=.....

a) 1 b) 7 c) 29 d) 90

8) If the lowest limit of a set is 4 and the upper limit is 8 then its center is .....

a) 2 b) 4 c) 6 d) 8

9) If : $\frac{3}{4}$ the volume of the sphere is $8\pi\ cm^3$, then its radius length is .....

a) 64 b) 8 c) 4 d) 2

10) If the median of the set of the values K+1 ,K+2 ,K+5 ,K+4 , K+3 where K is the positive number is 13 ,then K = ...

a) 2 b) 5 c) 10 d) 13

11) If : $x = \sqrt{3} + 2$ and $y = \sqrt{3} - 2$ then (xy ,x +y) = ...

a) $(1, 2\sqrt{3})$ b) $(-1, 2\sqrt{3})$ c) $(5, 2\sqrt{3})$ d) (5, 9)

12) Id the mark of 8 students in one exam are 40 , 17 ,39 , 27 , 28 ,37 , 27 , 25 , then the arithmetic mean of these mark is .....

a) 64 b) 240 c) 30 d) 8

13) The number $(1 - \sqrt{5})(1+ \sqrt{5})$ is a ..... number .

a) Positive natural b) rational c) irrational d) prime

14) If the start of a set is 18 and its center is 20, then its length is .....

a) 2 b) 4 c) 9 d)10

15)] -1 ,3] ∩ [-3 , - 1] equals .....

a) ∅ b) {-3} c) {-1} d){3}

16) The S.S of the equation $x^2+3=0$ in $\mathbb{R}$ is = ...

a) ∅ b) $\{-\sqrt{3}\}$ c) $\{\sqrt{3}\}$ d) $\{\pm\sqrt{3}\}$

17) If : $x=\sqrt{7}+\sqrt{2}$ and $y=\sqrt{7}-\sqrt{2}$,then $x-y=$ .....

a)$7\sqrt{2}$ b) $2\sqrt{7}$ c) $\sqrt{41}$ d)$2\sqrt{2}$

18) $\sqrt{3}(\sqrt{11}+\sqrt{3})=$ .....

a) $3\sqrt{11}+2$ b) $\sqrt{33}+3$ c) $11\sqrt{3}+2$ d) $2\sqrt{11}+3$

19) If the order of the median of a set of the values is the fourth , then the numbers of values is .....

a) 3 b) 5 c) 7 d) 9

20) If the mode of the set of values : 5, 9, 5, x-2 , 9 is 9 , then x = ...

a) 5 b) 57 c) 9 d) 11

21) R = ...

(a) $R_+ \cap R_-$ (b) $R_+ \cup R_-$ (c) $]-\infty,\infty[$ (d) $Q \cap Q'$

22) R+ = ...

(a) $]0,\infty[$ (b) $]-\infty,0[$ (c) $]0,-\infty[$ (d) $]-\infty,0]$

23) R- = ...

(a) $]0,\infty[$ (b) $]-\infty,0[$ (c) $]0,-\infty[$ (d) $]-\infty,0]$

24) The set of non-negative real numbers = ...

(a) $[0,\infty[$ (b) $]-\infty,0[$ (c) $]0,-\infty[$ (d) $]-\infty,0]$

25) The set of non-positive real numbers = ...

(a) $]0,\infty[$ (b) $]-\infty,0[$ (c) $]0,-\infty[$ (d) $]-\infty,0]$

3) Find the value of : $\sqrt{18} + \sqrt[3]{54} - 3\sqrt{2} - \frac{1}{2}\sqrt[3]{16}$

4) Prove that : $\sqrt[3]{128} - \sqrt[3]{16} - 2\sqrt[3]{54} = 0$

5) Find in the simplest form : $2\sqrt{18} + \sqrt{50} + \frac{1}{3}\sqrt{162}$

6) Reduce : $2\sqrt{5} + 4\sqrt{\frac{1}{3}} - \sqrt{27} - 5\sqrt{\frac{1}{5}}$

7) Find in the simplest form: $\sqrt[3]{54} + 4\sqrt[3]{\frac{1}{4}} - \sqrt[3]{-2}$

8) *If :x= $\sqrt{5}+\sqrt{2}$ and, y = $\sqrt{5}-\sqrt{2}$* ***Find the value of*** $\frac{x+y}{xy-1}$

9) If : $x = \frac{4}{3+\sqrt{5}}$ $y = 3+\sqrt{5}$ **prove that :**x and y are conjugate numbers , then find the value of $x^2 + y^2$

10) If $(\sqrt{3})^X = (2\sqrt{2} - \sqrt{5})(2\sqrt{2}+\sqrt{5})$,then what is the value of X

11) Find the S.S of the inequality: $-2 < 3X + 7 \leq 10$ in $\mathbb{R}$, then represent the interval of the solution on the number line.

12) Find the S.S of the equation in $\mathbb{R}$: $(x^2 - 9) (x^2 - 5) = 0$

13) Find the S.S of the inequality: $X - 5 < 2X + 4 \leq X + 3$ **in** $\mathbb{R}$, then represent the interval of the solution on the number line.

14) Write in the form of an interval the S.S of the inequality:

$$X + 4 \geq 2X - 3 > X + 1$$

15) The radius length of the base of right circular cylinder is $4\sqrt{2}$ .and its height is 9 cm .find its volume in terms of π and if its volume equal the volume of the sphere fin the radius length of the sphere.

16) The volume of the sphere is $\frac{99000}{7}$ cm ^{3} .calculate its radius length. $(\pi = \frac{22}{7})$

17) Find the total area of a right circular of volume 7536 cm^3 and its height is 24 cm $(\pi = 3.14)$

18) Find the volume and surface area of a sphere if the length its diameter is 4.2cm

19) Represent graphically the relation : Y = 2 – X

20) Represent graphically the relation : Y = X + 3

21) If M = [2 , ∞] , J =] -2 , 3 [, find each of the following using the number line

a. M ∪ J = ...

b. M ∩ J = ...

c. M - J = ...

d. M̀ = ...

e. J̀ = ...

22) If: X =]−∞ , 3] and Y = [– 4 , ∞[,find using the number line.

a. X∪Y= .....

b. X∩Y= .....

c. X– Y= .....

d. Y – X= .....

e. X̀= .....

f. Ỳ= .....

23) Complete : the median of the values 2 , 9 , 3 , 7 , 5 is .....

24) Find the arithmetic mean of the following frequency distribution:

Sets	5-	15-	25-	35-	45-	Total
Frequency	3	4	7	4	2	20

25) A factory has 600 workers. A sample of 120 workers is selected to represent the society very well. the frequency distribution was as in the table:

Age	25-	30-	35-	40-	45-	50-	Total
No. of workers	12	17	18	40	25	8	120

Draw the histogram, then from the graph deduce the mode of the ages of the workers of the factory.

26) Find the median using the ascending cumulative table, find the value of K:

Sets	20-	30-	K-	50-	60-	70-	Total
Frequency	10	15	22	25	20	8	100

Part (1)

(1) Complete:

1) $\sqrt[3]{c^3}$ = ……

2) $\sqrt{16} = \sqrt[3]{\ldots\ldots}$

3) $-\sqrt[3]{-1} - \sqrt{1}$ = ……

4) $\frac{\sqrt[3]{-64}}{\sqrt{64}}$ = ……

5) $-\sqrt[3]{64}$ + …… = 5

6) $\mathbb{Q} \cap \grave{\mathbb{Q}}$ = ……

7) $\mathbb{Q} \cup \grave{\mathbb{Q}}$ = ……

8) $\mathbb{R}^+ \cap \mathbb{R}^-$ = ……

9) $\mathbb{R} - \grave{\mathbb{Q}}$ = ……

10) $\mathbb{R} - \{0\}$ = ……

11) $\mathbb{R} - \mathbb{Q}$ = ……

12) The multiplicative neutral element in $\mathbb{R}$ is …… and the additive neutral in $\mathbb{R}$ is ……

13) The additive inverse of the number 3 - $\sqrt{5}$ is ……

14) The multiplicative inverse of the number $\frac{7}{\sqrt{7}}$ is $\frac{\ldots\ldots}{\sqrt{7}}$

15) The conjugate number of the number $\frac{2}{\sqrt{3}-\sqrt{2}}$ is ……

16) If x = 2 + $\sqrt{5}$ and y is the conjugate number of x then $(x - y)^2$ = ……

17) If x = $\sqrt{3} + 2$, y = $\sqrt{3} - 2$ then (xy , x + y) = ……

18) $\sqrt[3]{2} \times 3\sqrt[3]{32}$ = ……

19) $\sqrt[3]{54} + \sqrt[3]{16} - \sqrt[3]{250}$ = ……

20) $\sqrt[3]{16} - \frac{1}{3}\sqrt[3]{54} + \sqrt[3]{-2}$ = ……

21) $\sqrt[3]{\frac{2}{3}} \times \sqrt[3]{12}$ = ……

22) If x = 2 , y = $\sqrt[3]{-16}$, then $\left(\frac{x}{y}\right)^3$ = ...

23) $\frac{1}{2}\sqrt[3]{56} - \sqrt[3]{\frac{7}{27}}$ = ...

24) [3 , 4 [∪] 3 , 4] = ...

25)] – 3 , 2] – [0 , 2] = ...

26) [2 , 7] -] 2 , 7 [= .....

27) $\frac{4}{\sqrt{5}+\sqrt{3}} + \frac{4}{\sqrt{5}-\sqrt{3}}$ = ...

28) $\frac{\sqrt{6}-\sqrt{5}}{\sqrt{6}+\sqrt{5}} + \frac{\sqrt{6}+\sqrt{5}}{\sqrt{6}-\sqrt{5}}$ = ...

29) ..... < $\sqrt{5}$ < .....

30) ..... < $\sqrt[3]{30}$ < .....

(2) Choose the correct answer:

1) $\sqrt[3]{\left(\frac{1}{8}\right)^2}$ = ...

a) $\frac{1}{2}$ b) $\frac{1}{4}$ c) $\frac{1}{8}$ d) $\frac{1}{16}$

2) $\sqrt[3]{\frac{0.001}{8}}$ = ...

a) $\frac{1}{2}$ b) 2 c) $\frac{1}{20}$ d) 20

3) $-\sqrt{25} = \sqrt[3]{y}$, then y = ...

a) 4 b) – 4 c) 25 d) – 125

4) If $\frac{x}{3} = \frac{9}{x^2}$, then x = ...

a) 1^3 b) 3 c) 9 d) 27

5) The irrational number in the following numbers is ……

a) $\sqrt{\frac{1}{4}}$ b) $\sqrt[3]{8}$ c) $\sqrt{\frac{4}{9}}$ d) $\sqrt{2}$

6) If n ∈ $\mathbb{Z}_+$, n < $\sqrt{26}$ < n + 1 then n = ……

a) 15 b) 5 c) – 5 d) 24

7) The square whose area is 10 cm^2, its side length is ……. cm.

a) 5 b) – 5 c) $\sqrt{10}$ d) $-\sqrt{10}$

8) $\sqrt[3]{24}$ …… 3 (> , < , =)

9) $\sqrt[3]{8}$ …… $\sqrt{4}$ (> , < , =)

10) $\sqrt[3]{3} - 1$ …… 0.2 (> , < , =)

11) $1 + \sqrt{3}$ …… $\sqrt{5}$ (> , < , =)

12) $\mathbb{R}$ = ……

a) $\mathbb{Q} \cup \grave{\mathbb{Q}}$ b) $\mathbb{Z}_+ \cup \mathbb{Z}_-$ c) $\mathbb{R}_+ \cup \mathbb{R}_-$ d) $\mathbb{N} \cup \mathbb{R}_-$

13) If x is a negative number, then which of the following number is positive

a) x^2 b) x^3 c) 2x d) $\frac{x}{2}$

14) If x ∈ $\mathbb{R}^+$, y ∈ $\mathbb{R}^+$ and if $x^2 > y^2$ then ……

a) x > y b) x < y c) x = y d) x ≤ y

15) The s.s of the equation $x^2 + 1 = 0$ in $\mathbb{R}$ is ……

a) { - 1 } b) { 1 , - 1 } c) { 1 } d) ∅

16) 3 …… [3 , 5] (∈ , ∉)

17) | - 3 | …… [2 , ∞ [(∈ , ∉)

18) 5 ……] $\sqrt{5}$, $\sqrt{23}$ [(∈ , ∉)

19) $\sqrt[3]{-1}$ ……] $-\infty$, 1 [(∈ , ∉)

20) The multiplicative inverse of the number $\sqrt{5}$ = ……

a) – 5 b) $\frac{-1}{5}$ c) $\frac{5}{\sqrt{5}}$ d) $\frac{\sqrt{5}}{5}$

21) The additive inverse of the number $\frac{6}{\sqrt{2}}$ is ……

a) $-2\sqrt{3}$ b) $2\sqrt{3}$ c) $-3\sqrt{2}$ d) $3\sqrt{2}$

22) $\sqrt[3]{\frac{2}{9}}$ = ……

a) $\frac{\sqrt[3]{6}}{3}$ b) $\sqrt[3]{\frac{1}{6}}$ c) $\sqrt[3]{6}$ d) $\sqrt[3]{2}$

(3) Find the value of x in each of the following:

a) $\sqrt[3]{x} = \frac{-1}{4}$

b) $\sqrt[3]{x} - 3 = -1$

c) $x^3 + 5 = 32$

d) $\frac{1}{5}x^3 = -200$

e) $x < \sqrt[3]{-100} < x + 1$

f) $x < |-\sqrt{35}| < x + 1$

(4) Find the value of a , b

a) $\frac{3}{2\sqrt{2}-\sqrt{5}} = a\sqrt{2} + b\sqrt{5}$

b) $\frac{11}{2\sqrt{5}+3} = a\sqrt{5} + b$

(5) Write the conjugate of the numbers:

a) $\sqrt{5} + \sqrt{3}$ b) $5 - 2\sqrt{7}$

(6) If x = $\frac{2}{\sqrt{7}-\sqrt{5}}$, y = $\frac{2}{\sqrt{5}+\sqrt{7}}$ find $(x + y)^2$

(7) If x = [2 , 5 [and y = [-1 , 3 [find using the number line:

1) x ∪ y 2) x ∩ y 3) x – y

4) y – x 5) x` 6) y`

(8) A square of side length is 6 cm find its diagonal length.

(9) A rectangle with dimensions 5 cm , 7 cm, if the area equals the area of a square, then find the side length of the square and its diagonals length.

(10) Prove that $\sqrt{7}$ included between 2.6 and 2.7

(11) Find the s.s in $\mathbb{Q}$:

a) $x^2 = 13$

b) $\frac{2}{5}x^2 = \frac{25}{2}$

c) $(x^3 + 5)(x^2 - 3) = 0$

12) Represent $2 - \sqrt{3}$ on the number line

Part (2)

(1) Choose the correct answer:

1) $\mathbb{R}$ = ……

a) $\mathbb{R}_+ \cup \mathbb{R}_-$ b)] - ∞ , + ∞ [

c)] - ∞ , 0] d)] 0 , - ∞ [

2) It the volume of the sphere is $\frac{9}{16}\pi$ cm^3 , then it's radius length ….

a) 3π cm b) 3 cm c) $\frac{4}{3}$ cm d) $\frac{3}{4}$ cm

3) $\sqrt{8} - \sqrt{2}$ = ……

a) $\sqrt{2}$ b) 2 c) $\sqrt{6}$ d) 4

4) If the volume of the sphere is $\frac{32}{3}\pi$ cm^3, then it's diameter is of length equals ……

a) 2 cm b) 4 cm c) 8 cm d) 32 cm

5) [-3 , 7 [- { - 3 , 7 } = ……

a) [- 3 , 7 [b)] – 3 , 7] c)] – 3 , 7 [d) (0 , 0)

6) { 8 , 9 , 10 } -] 8 , 10 [= ……

a) ∅ b) { 8 , 10 } c) { 9 } d) $\mathbb{N}$

7) The volume of a cube is 125 cm^3, then its total area equals ……

a) 25 cm^2 b) 50 cm^2 c) 125 cm^2 d) 150 cm^2

8)] – 3 , 5 [∩ [0 , 3 [= ……

a) [0 , 3] b) [0 , 3 [c)] – 3 , 0 [d) [3 , 5 [

9) $\frac{1}{2}\sqrt{20} + 10\sqrt{\frac{1}{5}}$ = ...

a) $3\sqrt{5}$ b) $4\sqrt{5}$ c) 5 d) 12

10) The volume of a right circular cylinder is 90 πcm^3 and its height is 10 cm then the radius length of its base equals .....

a) 3 cm b) 4.5 cm c) 5 d) 9 cm

11) If x = $\sqrt{7} + \sqrt{3}$ and y = $\sqrt{7} - \sqrt{3}$ then xy = ...

a) 4 b) 10 c) 40 d) 58

12) The edge length of a cube is 4 cm, then its volume is .....

a) 16 cm^3 b) 24 cm^3 c) 64 cm^3 d) 96 cm^3

13) The volume of a cube is 64 cm^3, then its edge length is .....

a) 32 b) 16 cm c) 8 cm d) 4 cm

14) The circumference of a circle is 44 cm then its diameter length is ..... ($\pi = \frac{22}{7}$)

a) 14 cm b) 22 cm c) 44 cm d) 154 cm

15) The multiplicative inverse of the number $\sqrt{5}$ is .....

a) $-\sqrt{5}$ b) $\frac{-1}{\sqrt{5}}$ c) $\frac{\sqrt{5}}{5}$ d) $\frac{5}{\sqrt{5}}$

16) [- 3 , 4] $\cap$ [2 , 6] = ...

a) [- 3 , 2] b) [- 3 , 6] c) [2 , 4] d)] 2 , 6 [

17) If the radius length of a sphere is 3 cm, then its volume is .....

a) 4π cm^3 b) 9π cm^3 c) 27π cm^3 d) 36π cm^3

18) [- 3 , 2] – { - 3 , 6 } = ...

a)] -3 , 6 [b)] – 3 , 2 [c)] – 3 , 2] d) $\emptyset$

19) The s.s of the inequality – 1 < x + 3 < 3 in $\mathbb{R}$ is ……

a) [- 4 , 0] b) [2 , 6] c)] – 4 , 0 [d)] 2 , 6 [

20) $\frac{1}{2}\sqrt{48} = 2 \times$ ……

a) $\sqrt{3}$ b) $\sqrt{12}$ c) $\sqrt{96}$ d) 192

21) The expression $\frac{\sqrt{25-9}}{\sqrt{25}-\sqrt{9}}$ = ……

a) – 1 b) 1 c) 2 d) 3

22) The s.s of the in equality 3 ≤ x + 2 < 5 in $\mathbb{R}$ equals ……

a) [1 , 3 [b)] 1 , 3] c) [1 , 3] d)] 1 , 3 [

23) If the volume of a sphere equals $36\,\pi\ \text{cm}^3$, then its radius length is ……

a) $\sqrt[3]{3}\ \text{cm}$ b) $\sqrt{3}\ \text{cm}$ c) 3 cm d) 9 cm

24) The s.s of the inequality -2x ≥ 6 in $\mathbb{R}$ is ……

a)] - ∞ , - 3 [b)] - ∞ , - 3] c) [-3 , + ∞ [d)] -3 , + ∞ [

(2) Complete the following:

1) [2 , 5] – { 2 , 5 } = ……

2) if – x < 2 then x ∈ ……

3) { - 1 , 0 , 1 } ∩] – 1 , 1 [= ……

4)] - ∞ , 1] ∩ [- 4 , ∞ [= ……

5) If $\sqrt{x} = \sqrt{2} + 1$ then x = ……

6) [2 , 5] ∩ [2 , 5 [= ……

7) $\sqrt[3]{64} = \sqrt{\ldots\ldots\ldots\ldots}$

8) The multiplicative inverse of the number $\frac{3}{\sqrt{3}}$ is $\frac{\ldots\ldots\ldots}{\sqrt{3}}$

9) The s.s of the inequality – x + 1 ≤ 0 in $\mathbb{R}$ is ……

10) If $x = \sqrt[3]{3} + 1$ and $y = \sqrt[3]{3} - 1$ then $(x + y)^3$ = ……

11) [2 , ∞ [– [4 , ∞ [= ……

12) If the side length of a square is L cm and its area is 30 cm^3, then the area of the square whose side length equals 2 L cm is ……

13) The slope of the straight line which passes through (-3 , 1) and (2 , 5) equals ……

14) The sum of lengths of all edges of a cube is 36 cm then, its total area equals …… cm^2.

15) The relation y = 3x + 4 , and x = 1 , then y = ……

(3) Answer the following questions:

1) Reduce to the simplest form: $\sqrt{75} - \sqrt[3]{-125} + \frac{10}{\sqrt{3}-1}$

2) A right circular cylinder, whose height equals the radius length of its base and its volume equals $27\pi\ cm^3$ calculate its lateral surface area.

3) Solve in $\mathbb{R}$ the inequality 5 – 2x ≤ 9 then represent the solution set on the number line.

4) Find the s.s of the inequality 3x < 2x + 4 in $\mathbb{R}$ and represent the interval of solution on the number line.

5) If $x = \sqrt{3} - 1$ and $y = \frac{1}{\sqrt{3}-\sqrt{2}}$ find the value of $x \times y$

6) The area of one face of a cube is 36 cm^2 find the length of its edge, and its volume.

7) Find the s.s of the inequality 1 < x + 1 ≤ 4 in $\mathbb{R}$ then represent the interval of solution on the number line.

8) Reduce to the simplest form $2\sqrt{5}\left(\sqrt{5}-2\right)+\sqrt{20}+10\sqrt{\frac{1}{5}}$

9) Find the value of $\sqrt{75}-2\sqrt{27}+3\sqrt{\frac{1}{3}}$

10) Find the s.s of the inequality $5 \leq 3 - x < 7$ in $\mathbb{R}$ and represent the interval of solution on the number line.

11) If $x = \sqrt{7}+3$ and $y = \sqrt{7}-3$ then find the value of $\left(\frac{x+y}{xy}\right)^2$

12) Find the s.s of the inequality $3 \leq x + 2 \leq 6$ in $\mathbb{R}$

13) Write the form of an interval the s.s of the inequality $-1 < 5 - 2x < 7$ in $\mathbb{R}$, then represent the solution on the number line.

14) If $x = \sqrt{5}+\sqrt{2}$ then prove that $\frac{6}{x}+2x = 4\sqrt{5}$

15) Find the totals area of a right circular cylinder of radius of its base is $\frac{7}{\sqrt{2}}$ cm and its height is $10\sqrt{2}$ cm. $(\pi = \frac{22}{7})$

16) If $x = 2\sqrt{2}-\sqrt{3}$ and $= \frac{5}{2\sqrt{2}-\sqrt{3}}$, then prove that x and y are two conjugate numbers.

17) Reduce to the simplest form: $\sqrt[3]{16}-\frac{1}{3}\sqrt[3]{54}+\sqrt[3]{-2}$

18) If $x = \frac{5}{\sqrt{7}-\sqrt{2}}$ and $= \frac{5}{\sqrt{7}+\sqrt{2}}$, then find the value of x^2y^2

19) If $a = \sqrt{2}+1$ and b $= \frac{1}{1+\sqrt{2}}$, then find the value of $(a-b)^2$

20) A metallic sphere of radius length 6 cm. It is melted and its material has been converted into a right circular cylinder its base radius is of length 6 cm calculate the height of the cylinder.

21) If (a , 2a) satisfies y = x – 1 then find the value of a

22) Represent the relation y = x + 2 graphically.

Statistics

(1) Choose the correct answer from those given:

1) The order of the median of the set of values 4, 5, 6, 7, 8 is …….

a) third b) fourth c) fifth d) sixth

2) If the order of the median of a set of values is the fourth then the number of these values is …….

a) 3 b) 5 c) 7 d) 9

3) If the order of the median of the set of values is the fifth, then the number of these values equals …….

a) 5 b) 6 c) 9 d) 10

4) The median of the set of the values 15 , 22 , 9 , 11 , 33 is ……

a) 9 b) 15 c) 18 d) 90

5) The median of the set of values 34, 23, 25, 40, 22, 4 is ……

a) 22 b) 23 c) 24 d) 25

6) The median of the set of the values 3, 6, 6, 7, 9, 11, 13, 14, 15, 20 is …….

a) 9 b) 10 c) 11 d) 20

7) If the median of the set of the values 27, 45, 19, 24, 28 is x then x = …….

a) 24 b) 27 c) 28 d) 45

8) If the median of the set of the values k + 1 , k + 2 , k + 5 , k + 3 , k + 3 where is (appositive number) is 13 then k = …….

a) 2 b) 5 c) 10 d) 13

9) The arithmetic mean of the values 19, 32, 27, 6, 6 is …….

a) 90 b) 32 c) 18 d) 6

10) If the arithmetic mean of the values 27, 8, 16, 24, 6, k is 14 then k = …….

a) 9 b) 6 c) 27 d) 84

11) If the arithmetic mean of the values 18, 23, 29, 2k – 1, k is 18 then k = …….

a) 6 b) 7 c) 29 d) 90

12) The arithmetic mean of the values 3 – a , 5 , 1 , 4 , 2 + a equals …….

a) 5 b) 2 c) 3 d) 15

13) If the arithmetic mean of 6 values is 12, then the sum of these values equals …….

a) 12 b) 6 c) 18 d) 72

14) The set which its lowest boundary is 2 and its upper boundary is 6, then its centre is …….

a) 3 b) 6 c) 4 d) 8

15) The set which its lowers limit is 5 and its upper limit is 7, then its centre is …….

a) 9 b) 6 c) 4 d) 5

(2) Find the arithmetic mean of the following frequency distribution:

Sets	1-	3-	5-	7-	9-	Total
Frequency	4	6	8	7	5	30

(3) Find the arithmetic mean of the following frequency distribution:

Sets	5-	15-	25-	35-	45-	Total
Frequency	3	10	12	10	5	40

(4) Find by using the following frequence distribution

Sets	0-	2-	4-	6-	k-	Total
Frequency	m	5	8	7	2	25

a) The value of k and m

b) The median using the ascending cumulative curve

c) The arithmetic mean

d) The mode

Part (1) Answers

(1) Complete

1) C
2) 64
3) Zero
4) $-\frac{1}{2}$
5) 1
6) ∅
7) R
8) ∅
9) $\mathbb{Q}$
10) R – { 0 }
11) $\grave{\mathbb{Q}}$
12) 1 , zero
13) $-3+\sqrt{5}$
14) 1
15) $2(\sqrt{3}+\sqrt{2})$
16) Zero
17) $(-1, 2\sqrt{3})$
18) 12
19) $10\sqrt[3]{2}$
20) Zero
21) 2
22) $-\frac{1}{2}$
23) $\frac{2}{3}\sqrt[3]{7}$
24) [3 , 4]
25)] – 3 , 0 [
26) { 2 , 7 }
27) $4\sqrt{5}$
28) 22
29) 2 , 3
30) 3 , 4

(2) Choose

1) $\frac{1}{4}$
2) $\frac{1}{20}$
3) – 125
4) 3
5) $\sqrt{2}$
6) 5
7) $\sqrt{10}$
8) <
9) =
10) >
11) >
12) Q ∪ Q`
13) X^2
14) X > Y
15) ∅
16) ∈
17) ∈
18) ∉
19) ∈
20) $\frac{\sqrt{5}}{5}$
21) $-3\sqrt{2}$
22) $\frac{\sqrt[3]{6}}{3}$

(3) a) $-\frac{1}{64}$ b) 8 c) 3

d) – 10 e) – 5 f) 5

(4) a) a = 3 , b = 1

b) a = 2 , b = 3

(5) a) $\sqrt{5} - \sqrt{3}$ b) $5 + 2\sqrt{7}$

(6) $X = \frac{2}{\sqrt{7}-\sqrt{5}} \times \frac{\sqrt{7}+\sqrt{5}}{\sqrt{7}+\sqrt{5}} = \sqrt{7} + \sqrt{5}$

$Y = \frac{2}{\sqrt{5}+\sqrt{7}} \times \frac{\sqrt{5}-\sqrt{7}}{\sqrt{5}-\sqrt{7}} = \sqrt{7} - \sqrt{5}$

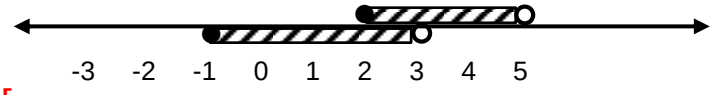
$(X + Y)\,2 = (\sqrt{7} + \sqrt{5} + \sqrt{7} - \sqrt{5})\,2$

$= (2\sqrt{7})2$

$= (4 \times 7)$

$= 28$

(7)



1) [-1 , 5 [

2) [2 , 3 [

3) [3 , 5 [

4) [-1 , 2 [

5)] - ∞ , 2 [∪ [5 , ∞ [

6)] - ∞ , -1 [∪ [3 , ∞ [

(8) A of square = 6 x 6 = 36 cm^2

d = $\sqrt{2A}$ = $\sqrt{2\ X\ 36}$ = $\sqrt{72}$ = 8.5 cm

(9) A of Rectangle = 5 X 7 = 35 cm^2

A of Square = 35 cm^2

d = $\sqrt{2A}$ = $\sqrt{2\ X\ 35}$ = $\sqrt{70}$ = 8.4 cm

the side length of the square = $\sqrt{A}$ = $\sqrt{35}$ = 5.9 cm

(10) $\sqrt{7} \simeq 2.65$

$2.6 < 2.65 < 2.7$

(11) a) $X = \pm\sqrt{13}$ S.S = $\{ \pm\sqrt{13} \}$

b) $X = \pm\sqrt{\frac{25}{2} X \frac{5}{2}}$ = $\pm\sqrt{\frac{125}{4}}$ = S.S = $\{ \pm\frac{\sqrt{125}}{2} \}$

c) $X^3 + 5 = 0$ or $X^2 - 3 = 0$

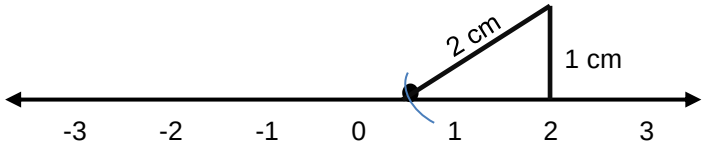
$X^3 = -5$ $X^2 = 3$

$X = \sqrt[3]{-5}$ $X = \pm\sqrt{3}$

S.S = $\{ \sqrt[3]{-5}\ ,\ \pm\sqrt{3} \}$

(12) The length of the hypotenuse = $\frac{3+1}{2}$ = 2 cm

The length of the side = $\frac{3-1}{2}$ = 1 cm



Part (2) Answers

(1) Choose

1)] - ∞ , ∞ [

2) r = $\frac{3}{4}$

3) $\sqrt{2}$

4) 2 × 2 = 4 cm

5)] – 3 , 7 [

6) { 8 , 10}

7) T.A. = 5 × 5 × 6 = 150 cm^2

8) [0 , 3 [

9) $3\sqrt{5}$

10) $\sqrt{\frac{90\pi}{10\pi}}$ = 3 cm

11) 7 – 3 = 4

12) v = 4^3 = 64 cm^3

13) E = $\sqrt[3]{64}$ = 4 cm

14) d = $\frac{c}{\pi}$ = 14 cm

15) $\frac{1}{\sqrt{5}} = \frac{\sqrt{5}}{5}$

16) [2 , 4]

17) v = $\frac{4}{3} \times \pi \times 3^3 = 36\pi$

18)] -3 , 2]

19)] -4 , 0 [

20) $\sqrt{3}$

21) $\frac{4}{5-3} = 2$

22) [1 , 3 [

23) r = 3 $\sqrt{\frac{v}{\frac{4}{3}\pi}}$ = 3 cm

24)] - ∞ , - 3]

(2) Complete:

1)] 2 , 5 [

2) x > - 2 then x ∈] – 2 , ∞ [

3) { 0 }

4) [- 4 , 1]

5) x = $(\sqrt{2}+1)^2 = 5$

6) ∅

7) $\sqrt[3]{64} = 4 = \sqrt{16}$

8) $\frac{\sqrt{3}}{3} = \frac{1}{\sqrt{3}}$

9) x > 1 , s.s = [1 , ∞ [

10) $(2\sqrt[3]{3})^3 = 8 \times 3 = 24$

11) [2 , 4 [

12) A = S^2 = 4 L^2 = 4 × 30 = 120 cm^2

13) m = $\frac{5-1}{2-(-3)} = \frac{4}{5}$

14) E = $\frac{36}{12} = 3\ cm$, T.A = 3 × 3 × 6 = 54 cm^2

15) y = 3 × 1 + 4 = 7

(3):

1) $5\sqrt{3} - 5 + 5 + 5\sqrt{3} = 10\sqrt{3}$

2) h = r , v = $\pi r^2 h = \pi r^3$

r = $\sqrt[3]{\frac{v}{\pi}} = \sqrt[3]{\frac{27\pi}{\pi}} = 3\ cm$

L.S.A. = $2\pi rh$ = 2 × π × 3 × 3 = 18 π

3) – 2 x ≤ 4 x ≥ - 2 S.S = [- 2 , ∞ [

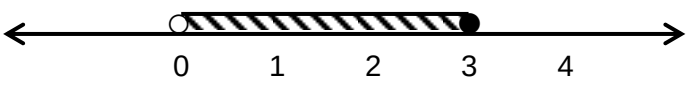
4) 3x – 2x < 4 x < 4 S.S =] - ∞ , 4 [

5) y = $\frac{1}{\sqrt{3}-\sqrt{2}} \times \frac{\sqrt{3}+\sqrt{2}}{3-2} = +(\sqrt{3}+\sqrt{2})$

xy = $+(\sqrt{3}-\sqrt{2})(\sqrt{3}+\sqrt{2}) = 3-2 = 1$

6) E = $\sqrt{36} = 6\ cm$, v = 6^3 = 216 cm^3

7) 0 < x ≤ 3 S.S =] 0 , 3]



8) $10 - 4\sqrt{5} + 2\sqrt{5} + 2\sqrt{5} = 10$

9) zero

10) 2 ≤ - x < 4

- 2 ≥ x > 4 s.s = [- 2 , 4 [

11) $\left(\frac{x+y}{xy}\right)^2 = \left(\frac{2\sqrt{7}}{7-9}\right)^2 = \left(-\sqrt{7}\right)^2 = 7$

12) $1 \leq x \leq 4$ s.s = [1 , 4]

13) $-6 < -2 < 2$, $3 > x > -1$ s.s =] – 1 , 3 [

14) $\frac{6}{\sqrt{5}+\sqrt{2}} + 2\sqrt{5} + 2\sqrt{2} = 2(\sqrt{5} - \sqrt{2}) + 2\sqrt{5} + 2\sqrt{2}$

$= 2\sqrt{5} - \cancel{2\sqrt{2}} + 2\sqrt{5} + \cancel{2\sqrt{2}} = 4\sqrt{5}$

15) T.A. $= 2\pi rh = 2 \times \frac{22}{\cancel{7}} \times \frac{\cancel{7}}{\cancel{\sqrt{2}}} \times 10\cancel{\sqrt{2}} = 440$ cm^2

16) $y = \frac{5}{2\sqrt{2}-\sqrt{3}} \times \frac{2\sqrt{2}+\sqrt{3}}{2\sqrt{2}+\sqrt{3}} = \frac{5(2\sqrt{2}+\sqrt{3})}{8-3} = 2\sqrt{2} + \sqrt{3}$

so , y is the conjugate of x

17) $2\sqrt[3]{2} - \sqrt[3]{2} - \sqrt[3]{2} = zero$

18) $x = \sqrt{7} + \sqrt{2}, y = \sqrt{7} - \sqrt{2}$

$x^2y^2 = (xy)^2 = (7-2)^2 = 25$

19) $b = -(1 - \sqrt{2}) = \sqrt{2} - 1$

$(a-b)^2 = 2^2 = 4$

20) V sphere = V cylinder

$\frac{4}{3}\pi \times 6^3 = \pi \times 6^2 \times h$

$h = \frac{6^3 \times \frac{4}{3}}{6^2}$ = 8 cm

21) 2a = a – 1

a = - 1

22)

x	-1	0	1	2
y	1	2	3	4

Represent by yourself

Statistics

(1) Choose:

1) third

2) 9

3) 9

4) 15

5) $\frac{23+25}{2} = 24$

6) $\frac{9+11}{2} = 10$

7) 27

8) k + 3 = 13 → k = 10

9) $\frac{19+32+27+6+6}{5} = 18$

10) $\frac{27+8+16+24+k+14}{7} = 14$ → k = 7 × 14 – 89 = 9

11) $\frac{18+23+29+2k-1+k}{5} = \frac{69+3k}{5} = 18$ → k = $\frac{5\times18-69}{3} = 7$

12) $\frac{3-1+5+1+4+2+a}{5} = 3$

13) 6 × 12 = 72

14) $\frac{2+6}{2} = 4$

15) $\frac{5+7}{2} = 6$

(2)

Sets	Center	Freq.	Center x freq.
1-	2	4	8
3-	4	6	24
5-	6	8	48
7-	8	7	56
9-	10	5	50
Total		30	186

Mean = $\frac{186}{60} = 6.2$

(3) Mean = $\frac{1240}{40} = 31$ " make table by yourself "

(4) a) k = 8 , m = 25 – (5 + 8 + 7 + 2) = 3

b) Mean = $\frac{125}{25} = 5$ (draw the mean table)

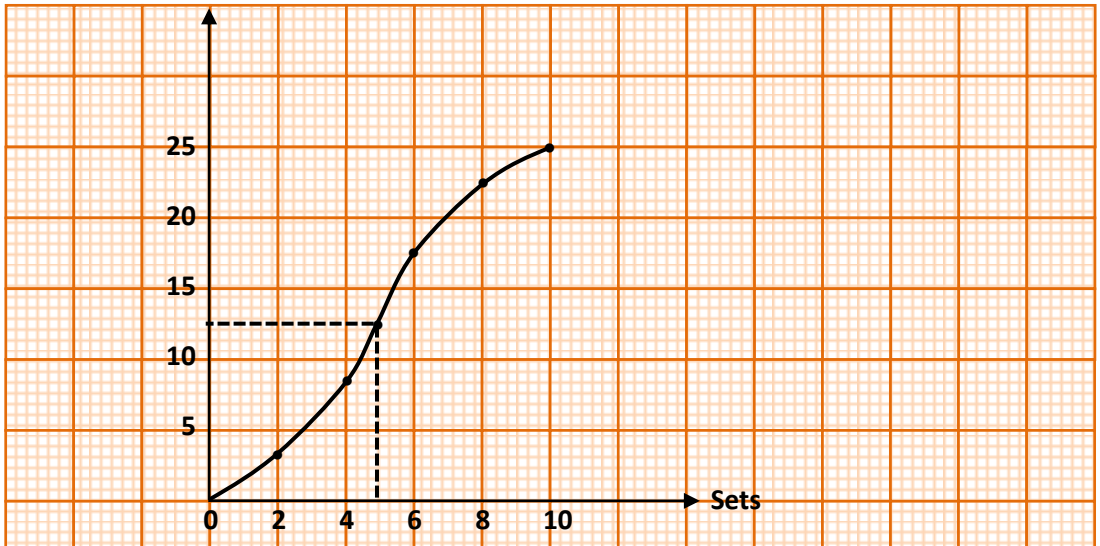
c)

The upper limit	Ascending cumulative freq.
less than 0	0
less than 2	3
less than 4	8
less than 6	16
less than 8	23
less than 10	25

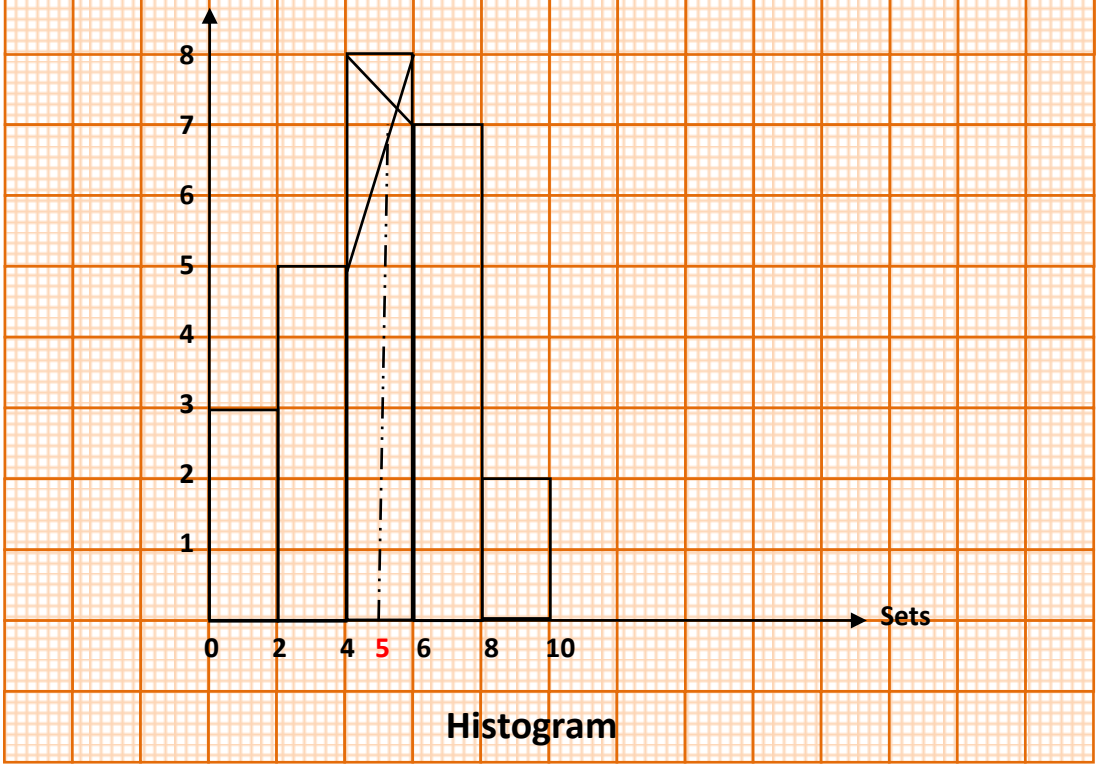
The order of median = $\frac{25}{2} = 12.5$

Median $\simeq$ 5

Mode $\simeq$ 5



Ascending Cumulative



Histogram

Exercises

[A] : Choose The Correct Answer : -

1	$\sqrt[3]{a^3}$ = ... A) a B) a^2 C) a^3 D) 2 a	A
2	$\sqrt{3}\ (\sqrt{11} + \sqrt{3}\ )$ = ... A) $3\sqrt{11} + 2$ B) $\sqrt{33} + 3$ C) $11\sqrt{3} + 2$ D) $2\sqrt{11} + 3$	B
3	$\sqrt{25}$ = $\sqrt[3]{\ldots\ldots\ldots}$ A) 5 B) 15 C) 125 D) – 5	C
4	$\sqrt[3]{\ldots\ldots\ldots}$ = 4 A) 4 B) 16 C) 64 D) 1	C
5	$\sqrt{25} + \sqrt[3]{-27} = \sqrt{\ldots\ldots\ldots}$ A) 8 B) 4 C) 2 D) 5	B
6	$\sqrt[3]{64} = \sqrt{X}$, then 2 X = ... A) 4 B) 8 C) 16 D) 32	D
7	$\sqrt[3]{64} = \sqrt{\ldots\ldots\ldots}$ A) 64 B) 8 C) 16 D) 32	C
8	$\sqrt[3]{27} = \sqrt{X+3}$, then X = ... A) 3 B) 6 C) 9 D) 12	B
9	$\sqrt[3]{64 + \ldots\ldots}$ = 5 A) 5 B) 61 C) 100 D) 25	B
10	If : $X^3 = 64$, then : $\sqrt{x}$ = ... A) 4 B) – 4 C) 2 D) –2	C
11	$X^2 = 5$, then $(X + \sqrt{5}\ )^2$ = ...or ..... A) 0 , 4 B) 0 , 20 C) 0 , 25 D) 0 , 10	B

12	$\frac{X^3}{y^3} = \frac{8}{27}$, then $(\frac{y}{X})^2$ = ... A) $\frac{8}{27}$ B) $\frac{2}{3}$ C) $\frac{4}{9}$ D) $\frac{9}{4}$	D
13	$X^2 - X^2 = 60$ and $X + y = 5$, then $X - y$ = ... A) 5 B) 60 C) 300 D) 12	D
14	The solution set of the equation : $X^2 = 2$ in R is ..... A) $\{\sqrt{2}\}$ B) $\{-\sqrt{2}\}$ C) $\{2\}$ D) $\{\sqrt{2}, -\sqrt{2}\}$	D
15	The solution set of the equation : $X^2 + 2 = 0$ in R is ..... A) $\varnothing$ B) $-\sqrt{3}$ C) $\sqrt{3}$ D) $\pm\sqrt{3}$	A
16	The solution set of the equation : $X^3 + 8 = 0$ in R is ..... A) $\{2\}$ B) $\{-2\}$ C) $\{2\sqrt{2}\}$ D) $\{2, -2\}$	B
17	The solution set of the equation : $X^3 + 9 = 8$ in R is ..... A) $\{8\}$ B) $\{9\}$ C) $\{3\}$ D) $\{-1\}$	D
18	The S.S of the equation : $(X^2 + 3)(X^2 + 1) = 0$ in R is ..... A) $\varnothing$ B) $\{3, 1\}$ C) $\{-3, -1\}$ D) $\{\pm 3, \pm 1\}$	A
19	The S.S of the equation : $(X^2 + 1)(X - 5) = 0$ in R is ..... A) $\varnothing$ B) $\{5\}$ C) $\{5, \pm 1\}$ D) $\{\pm 1\}$	B
20	The S.S of the equation : $(X^2 + 3)(X^3 + 1) = 0$ in R is ..... A) $\varnothing$ B) $\{1\}$ C) $\{\pm 3, \pm 1\}$ D) $\{-1\}$	D
21	The S.S of the equation : $(X^2 - 1)(X + 5) = 0$ in R is ..... A) $\varnothing$ B) $\{-5\}$ C) $\{-5, \pm 1\}$ D) $\{\pm 1\}$	C
22	The S.S of the equation : $X(X^3 - 1) = 0$ in R is ..... A) $\varnothing$ B) $\{0, 1\}$ C) $\{0, \pm 1\}$ D) $\{1\}$	B
23	If : $\frac{3}{a+2}$ is a rational number the a $\neq$ ..... A) 3 B) 5 C) -2 D) zero	C
24	If $n \in Z_+$, $n < \sqrt{26} < n + 1$, then a = ... A) 25 B) 5 C) 24 D) -5	B

25	The irrational number in the following numbers is ..... A) $\sqrt{\frac{1}{9}}$ B) $\sqrt{\frac{1}{4}}$ C) $\sqrt{3}$ D) $\sqrt[3]{27}$	C
26	The irrational number lies between 2 and 3 is ..... A) $\sqrt{10}$ B) $\sqrt{7}$ C) 2.5 D) $\sqrt{3}$	B
27	The area of a square whose side length is $\sqrt{3}$ cm = ... cm^2 A) $4\sqrt{3}$ B) + C) 3 D) 6	C
28	The square whose area is 10 cm^2, its side length is ..... cm A) 5 B) – 5 C) $\sqrt{10}$ D) $-\sqrt{10}$	C
29	The multiplicative inverse of $\frac{\sqrt{3}}{3}$ is ..... A) $\sqrt{3}$ B) 1 C) 3 D) $-\sqrt{3}$	A
30	The multiplicative inverse of $\sqrt{5}$ is ..... A) $-\sqrt{5}$ B) $\frac{\sqrt{5}}{5}$ C) $5\sqrt{5}$ D) $\frac{5}{\sqrt{5}}$	B
31	The multiplicative inverse of ($\sqrt{3}$ + $\sqrt{2}$) is ..... A) $\sqrt{3}$ B) $\sqrt{2}$ C) $\sqrt{3}+\sqrt{2}$ D) $\sqrt{3}-\sqrt{2}$	D
32	The additive inverse of ($3-2\sqrt{2}$) is ..... A) $3+2\sqrt{2}$ B) 3 C) 2 D) $2\sqrt{2}-3$	D
33	$Q \cap Q'$ = ... A) { 0 } B) $\varnothing$ C) R D) Q	B
34	$Q \cup Q'$ = ... A) { 0 } B) $\varnothing$ C) R D) Q	C
35	$R_+ \cup R_-$ = A) R B) Q C) N D) R^*	D
36	$\sqrt[3]{8}$ ..... $]-\infty, 4[$ A) $\in$ B) $\notin$ C) $\subset$ D) $\not\subset$	A
37	$5 \in$ ..... A) $]5, \infty[$ B) $]-\infty, 5[$ C) $(3, 5)$ D) $[-5, \infty[$	D

38	R = ... A) $R_+ \cup R_-$ B) $R_+ \cap R_-$ C) $]-\infty, \infty[$ D) $Q \cap Q'$	C
39	R_+ = ... A) $]0, \infty[$ B) $]-\infty, 0[$ C) $[0, \infty[$ D) $]-\infty, 0]$	A
40	R_- = ... A) $]0, \infty[$ B) $]-\infty, 0[$ C) $[0, \infty[$ D) $]-\infty, 0]$	B
41	The set of none –negative numbers = ... A) $]0, \infty[$ B) $]-\infty, 0[$ C) $[0, \infty[$ D) $]-\infty, 0]$	C
42	The set of none –positive numbers = ... A) $]0, \infty[$ B) $]-\infty, 0[$ C) $[0, \infty[$ D) $]-\infty, 0]$	D
43	$[2,7]-\{2,7\}$ = ... A) $\varnothing$ B) $[1,6]$ C) $]2,7[$ D) $\{0\}$	C
44	$[-2,5]-\{-2,6\}$ = ... A) $]-2,5[$ B) $]-2,6[$ C) $]-2,5]$ D) $[-2,5[$	C
45	$]3,5[\cup \{3,5\}$ = ... A) $]3,5[$ B) $[3,5[$ C) $]3,5]$ D) $[3,5]$	D
46	$]-2,2] \cup \{-2,0\}$ = ... A) $]-2,2[$ B) $[-2,2[$ C) $]-2,2]$ D) $[-2,2]$	B
47	$[1,3] \cup [2,5[$ = ... A) $]1,5[$ B) $[1,5[$ C) $]1,5]$ D) $[1,5]$	B
48	$]-\infty,1] \cup [-4,\infty[$ = ... A) R B) $[-4,\infty[$ C) $]-\infty,1]$ D) Q	A
49	$]-1,3] \cap [-3,-1]$ = ... A) $\varnothing$ B) $\{-1\}$ C) $\{-3\}$ D) $\{3\}$	B
50	$[1,5] \cap]-2,3]$ = ... A) $\{1,3\}$ B) $]1,3[$ C) $[1,3]$ D) $[1,3[$	C
51	$N \cap]1,2[$ = ... A) $\varnothing$ B) $\{1,2\}$ C) $\{1\}$ D) $]1,2[$	A

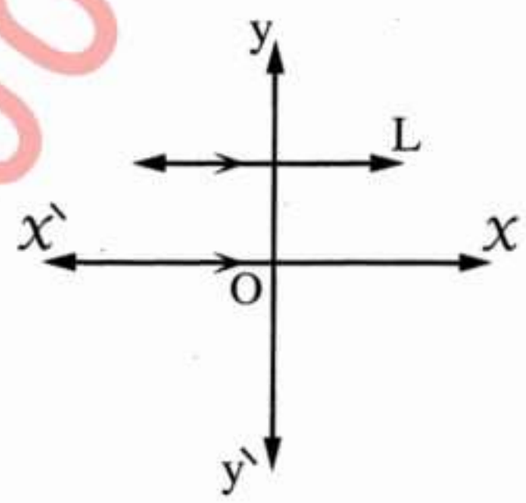
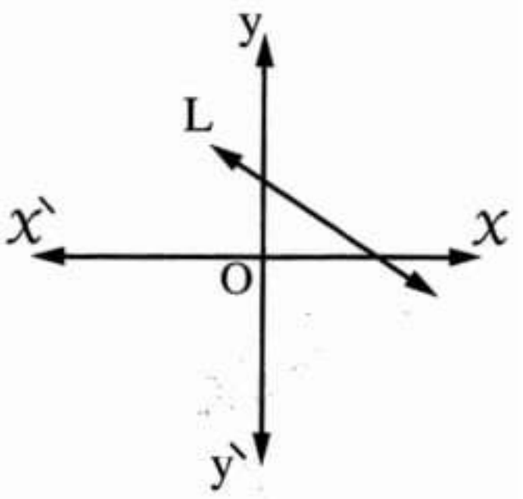
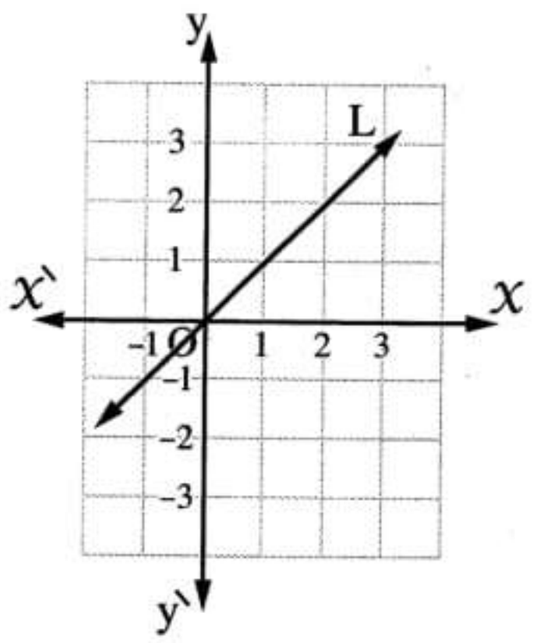
52	$[3,7[-]-2,5]=$ ..... A) $]5,7[$ B) $\{5,7\}$ C) $]-2,3[$ D) $[3,5]$	A
53	The additive neutral (identity) in R is ..... A) 0 B) 1 C) 2 D) 3	A
54	The multiplicative neutral (identity) in R is ..... A) 0 B) 1 C) 2 D) 3	B
55	If $a \in N$, $b \in Z$ and $c \in R$, then $a+b+c \in$ ..... A) N B) Z C) Q D) R	D
56	If $a \in R$ and $b \in R$. then $a-b$ means the sum of the number a and of ..... inverse of the number b A) 0 B) B C) Additive D) multiplicative	C
57	The number $(1-\sqrt{3})(1+\sqrt{3})$ is a number ..... A) Natural B) Rational C) Irrational D) Prime	B
58	The simplest form of the expression : $(\sqrt{3}-1)^2(\sqrt{3}+1)^2$ is ..... A) 3 B) 4 C) 13 D) 25	B
59	The multiplicative inverse of $(\sqrt{7}+\sqrt{3})(\sqrt{7}-\sqrt{3})$ is ..... A) 4 B) -4 C) $\frac{1}{4}$ D) $-\frac{1}{4}$	C
60	If : $X=\sqrt{5}+\sqrt{3}$, $y=\sqrt{5}-\sqrt{3}$, then $X-y=$ ..... A) $2\sqrt{3}$ B) $5\sqrt{3}$ C) $2\sqrt{5}$ D) 2	A
61	If : $X=\sqrt{7}+\sqrt{3}$, $y=\sqrt{7}-\sqrt{3}$, then $(X-y)^3=$ ..... A) Zero B) 24 C) $24\sqrt{3}$ D) 196	C
62	The conjugate number of : $\sqrt{5}+\sqrt{3}$ is ..... A) $\sqrt{5}+\sqrt{3}$ B) $\sqrt{5}-\sqrt{3}$ C) $2\sqrt{3}$ D) $2\sqrt{5}$	B
63	The conjugate number of : $\frac{2}{\sqrt{5}-\sqrt{3}}=$ ..... A) $\sqrt{5}+\sqrt{3}$ B) $\sqrt{5}-\sqrt{3}$ C) $2\sqrt{3}$ D) $2\sqrt{5}$	B
64	The conjugate number of : $\sqrt{3}-\frac{5}{\sqrt{5}}=$ ..... A) $\sqrt{5}+\sqrt{3}$ B) $\sqrt{5}-\sqrt{3}$ C) $2\sqrt{3}$ D) $2\sqrt{5}$	A

65	If : $\frac{X}{5-\sqrt{5}} = 5 + \sqrt{5}$, then X = ... A) 25 B) 20 C) 15 D) 10	B
66	If : $\frac{1}{X} = \sqrt{5} - 2$, then X = ... A) $\sqrt{5} - 2$ B) $\sqrt{5} + 2$ C) $\sqrt{5} - 5$ D) 0	B
67	If : $X = \frac{2}{\sqrt{5} - \sqrt{3}}$ and Xy = 2 , then y = ... A) $\sqrt{5} + \sqrt{3}$ B) $\sqrt{5} - \sqrt{3}$ C) $2\sqrt{3}$ D) $2\sqrt{5}$	B
68	A rectangle of dimensions $(\sqrt{3} - 1)$, $(\sqrt{3} + 1)$ cm. its area is..... A) 2 B) 4 C) $2\sqrt{3}$ D) $2\sqrt{5}$	A
69	If : $X = \sqrt{3} + 2$, $y = \sqrt{3} - 2$, then (Xy , X + y) = ... A) (1 , 1) B) (– 1 , 4) C) (– 1 , 9) D) $(-1, 2\sqrt{3})$	D
70	If : $X = \sqrt[3]{3} + 7$, $y = \sqrt[3]{3} - 7$, then $(X + y)^3$ = ... A) 3 B) 7 C) 24 D) 64	C
71	$\sqrt[3]{54} + \sqrt[3]{-2}$ = ... A) $\sqrt[3]{52}$ B) $\sqrt[3]{2}$ C) $2\sqrt[3]{2}$ D) $4\sqrt[3]{2}$	C
72	$\sqrt[3]{2} + \sqrt[3]{2}$ = ... A) $\sqrt[3]{2}$ B) $\sqrt[3]{4}$ C) $\sqrt[3]{8}$ D) $\sqrt[3]{16}$	C
73	$\sqrt[3]{\frac{2}{3}} \times \sqrt[3]{-12}$ = ... A) 2 B) – 2 C) 3 D) 5	B
74	$\sqrt[3]{24} + \sqrt[3]{-81} + \sqrt[3]{3}$ = ... A) $\sqrt[3]{3}$ B) 0 C) $6\sqrt[3]{3}$ D) $-\sqrt[3]{3}$	B
75	If the side length of a square is L cm. and its area is 30 cm^2, then the area of the square whose side length equals 2 L cm. is ..... A) 30 B) 60 C) 120 D) 180	C

76	Volume of a cube whose edge length 2 L cm. is ..... cm^3 A) 2 L B) 8 L C) $8 L^3$ D) L^3	C
77	The lateral area of a cube whose edge length is L cm. = ... cm^2 A) L^2 B) $4L^3$ C) L^3 D) $4L^2$	D
78	The edge length of a cube is 4 cm. , then its total area = ... cm^2. A) 4 B) 64 C) 96 D) 144	C
79	If the edge length of a cube is 5 cm. , then its volume = ... cm^3. A) 5 B) 25 C) 125 D) 325	C
80	The sum of lengths of all edges of a cube is 36 cm. , then its total area equals ..... cm^2 A) 3 B) 12 C) 54 D) 36	C
81	If the volume of a cube is 216 cm^3 , then the length of its edge is ..... A) 6 B) 12 C) 24 D) 36	A
82	The edge length of a cube whose volume is 3 cm^3 is .....cm. A) $\sqrt{3}$ 3 1 D) $\sqrt[3]{3}$	D
83	The edge length of a cube whose volume is $2\sqrt{2}$ cm^3 is ..... cm A) $\sqrt{2}$ B) 2 C) 8 D) 1.5	A
84	If the volume of a cube is $40\sqrt{5}$ cm^3 , then its edge length is .....cm. A) $\sqrt{5}$ B) $8\sqrt{5}$ C) $2\sqrt{5}$ D) $5\sqrt{2}$	C
85	The volume of a cuboid whose dimensions are : $\sqrt{2}$, $\sqrt{3}$, $\sqrt{6}$ cm is ..... cm^3 A) 6 B) 2 C) 3 D) 36	A
86	If a volume of a cube is 27 cm^3 , then the total area is ..... cm^2 A) 3 B) 9 C) 36 D) 54	D
87	If a volume of a cube is 27 cm^3 , then the lateral area is ..... cm^2 A) 3 B) 9 C) 36 D) 54	C
88	If a area of one face of a cube is 25 cm^2 , then it's volume = ...cm^3 A) 25 B) 5 C) 125 D) 1	C

89	Area of the square of side length is 21 cm. = ... cm^2 A) 441 B) 400 C) 525 D) 625	A
90	The volume of a sphere which its diameter 6 cm. = ... cm^3 A) 4π B) 9π C) 36π D) 27π	C
91	A volume of the sphere equals $32\sqrt{3}\ \pi\ cm^3$, its radius length ..... A) $\sqrt{3}$ cm B) 3 cm C) $2\sqrt{3}$ cm D) 9 cm	C
92	The radius length of a right circular cylinder whose volume is 40π cm^3 and its height 10 cm. = ... cm. A) 5 B) 3 C) 2 D) 1	C
93	If a volume of a cube is L^3 cm^3 , then the total area is ..... cm^2 A) $4L^3$ B) $6L^3$ C) $4L^2$ D) $6L^2$	D
94	The S.S. of equation : $\sqrt{2}\ X = 2$ in R = ... A) $\{\sqrt{2}\}$ B) $\sqrt{2}$ C) $\{2\}$ D) $\{2\sqrt{2}\}$	B
95	The S.S. of equation : $X + \sqrt{2} = \sqrt{8}$ in R = ... A) $\{\sqrt{2}\}$ B) $\sqrt{8}$ C) $\sqrt{6}$ D) $\sqrt{4}$	A
96	The S.S. of the inequality : $0 < x + 5 \leq 6$ in $\mathbb{R}$ is ..... (a) $]5 , 11]$ (b) $]-1 , 5]$ (c) $[-5 , 1[$ (d) $]-5 , 1]$	D
97	The S.S. of the inequality : $-x > 2$ in $\mathbb{R}$ is ..... (a) $\{2\}$ (b) $]-\infty , 2[$ (c) $]2 , \infty[$ (d) $]-\infty , -2[$	D
98	If $-1 < -x \leq 5$, then the S.S. in $\mathbb{R}$ is ..... (a) $[-5 , 1[$ (b) $[5 , -1[$ (c) $]-5 , 1]$ (d) $]-5 , 1[$	A
99	The S.S. of equation : $\sqrt{2}\ x = 2$ in $\mathbb{R}$ is ..... (a) $\{\sqrt{2}\}$ (b) $\sqrt{2}$ (c) $\{2\}$ (d) $\{2\sqrt{2}\}$	B
100	$\{x : x \in \mathbb{R} , x < 1\}$ = ... (a) $0 , -1 , -2 , \cdots$ (b) $]-\infty , 1]$ (c) $]-\infty , 1[$ (d) $]-\infty , 0]$	C
101	If : $x \in \mathbb{R}$, $1 - 7x > \lvert -8 \rvert$, then $x <$ ..... (a) 1 (b) –1 (c) $\frac{9}{7}$ (d) 0	B

102	If : $2 < x < 5$, then $3x - 1 \in$ ..... (a) $]3 , 12[$ (b) $]6 , 14[$ (c) $]5 , 15[$ (d) $]5 , 14[$	D
103	Which of the following represent linear relation ? A) $Xy = 2$ B) $X^2 = \frac{1}{y}$ C) $\frac{X}{y} = 1$ D) $y = X^2 + 4$	C
104	Which of the following satisfies the relation : $2X + y = 5$? A) $(-3 , 3)$ B) $(1 , 3)$ C) $(3 , 1)$ D) $(2 , 2)$	B
105	(3 , 2) satisfies the relation ..... A) $Y + X = 5$ B) $Y - X = 5$ C) $3Y - X = 2$ D) $2X + Y = 1$	A
106	(3 , 2) does not satisfy the relation ..... A) $Y + X = 5$ B) $X - Y = 1$ C) $Y + X = 7$ D) $3Y - X = 3$	C
107	Value of b where $(-3 , 2)$ satisfies the relation : $3X + by = 1$ is A) 3 B) 5 C) 4 D) 0	B
108	If : (a , 1) satisfies the relation : $2X + 3y = 7$, then a = ... A) 2 B) – 2 C) 4 D) 3	A
109	If : (k , 2 k) satisfies the relation : $3X + 2y = 14$, then k = ... A) 2 B) - 2 C) 7 D) 0	A
110	The opposite table shows the relation between x and y , which is ..... (a) $y = x + 4$ (b) $y = x + 1$ (c) $y = 2x - 1$ (d) $y = 3x - 2$ | x | 1 | 2 | 3 | 4 | 5 | | y | 1 | 3 | 5 | 7 | 9 |	C
111	The slope of the straight line parallel to the X – axis is ..... A) Positive B) Negative C) Zero D) Undefined	C
112	The slope of the straight line parallel to the Y – axis is ..... A) Positive B) Negative C) Zero D) Undefined	D
113	The slope of horizontal line is ..... A) 1 B) Zero C) - 1 D) Undefined	B
114	Slope of straight line passes through (- 2 , 3) and (2 , 3) is ..... A) 2 B) 1 C) Zero D) Undefined	C

115	Slope of straight line passes through (- 3 , 1) and (2 , 5) is ..... A) $\frac{4}{5}$ B) $-\frac{6}{1}$ C) $\frac{5}{4}$ D) $-\frac{1}{6}$	A
116	Slope of straight line passes through (3 , y) and (5 , – 2) is – 3 , then y = ... A) 2 B) 4 C) 6 D) – 30	B
117	If the Slope of straight line a X + b y + 1 = 0 is undefined , then ..... A) a = b B) a = zero C) b = zero D) a = – b	C
118	Relation : X – 5 = 0 is represented by a st. line whose slope is..... A) 0 B) – 5 C) 5 D) Undefined	D
119	**In the opposite figure :** The slope of the straight line L is ..... (a) positive. (b) negative. (c) zero. (d) undefined. 	C
120	The slope of the straight line L in the opposite figure is ..... (a) positive. (b) negative. (c) zero. (d) undefined. 	B
121	**In the opposite figure :** The slope of the straight line L is ..... (a) zero. (b) undefined. (c) 1 (d) $\frac{1}{2}$ 	C
122	The mean of the values : 2 , 5 , 4 , 5 is ..... (a) 4 (b) 5 (c) 16 (d) 8	A

123	If the arithmetic mean of the values : 27 , 8 , 16 , 24 , 6 and k is 14 , then k = ... (a) 3 (b) 6 (c) 27 (d) 84	A
124	If the mean of marks of 5 pupils is 20 , then the total of their marks = ... marks. (a) 4 (b) 15 (c) 25 (d) 100	D
125	The lowest limit of a set is 4 and the other limit is 8 , then its centre is ..... (a) 2 (b) 4 (c) 6 (d) 8	C
126	If the lowest boundary of a set is 10 and the upper boundary is X and its centre is 15 , then X = ... (a) 10 (b) 15 (c) 20 (d) 30	C
127	If the lower limit of a set is 18 and its centre is 20 , then its length is ..... (a) 2 (b) 19 (c) 22 (d) 4	D
128	The arithmetic mean of the values : 3 – a , 5 , 1 , 4 , 2 + a equals ..... (a) 1 (b) 2 (c) 3 (d) 15	C
129	The mean of the values : 2 – a , 4 , 1 , 5 , 3 + a is ..... (a) 1 (b) 2 (c) 3 (d) 15	C
130	The order of the median of the set of values : 8 , 4 , 7 , 6 , 5 is ..... (a) 7 (b) 6 (c) 3 (d) 5	C
131	If the order of the median of a set of values is the fourth , then the number of these values is ..... (a) 3 (b) 5 (c) 7 (d) 9	C
132	If the median of the set of the values : 27 , 45 , 19 , 24 and 28 is X , then X = ... (a) 24 (b) 27 (c) 28 (d) 45	B
133	The median of the values : 1 , 2 , 5 , 3 and 4 is ..... (a) 3 (b) 4 (c) 5 (d) 2	A

134	The median of the set of the values : 3 , 6 , 6 , 7 , 9 , 11 , 13 , 14 , 15 and 20 is ..... (a) 9 (b) 10 (c) 11 (d) 20	B
135	The mode of the values : 3 , 5 , 3 , 6 , 3 and 8 is ..... (a) 3 (b) 5 (c) 6 (d) 8	A
136	If the mode of the set of the values : 4 , 11 , 8 , 2 x is 4 , then x = ... (a) 2 (b) 4 (c) 6 (d) 8	A
137	The mode of the values : 15 , 9 , $x+1$, 9 , 15 is 9 , then x = ... (a) 9 (b) 14 (c) 10 (d) 8	D
138	The mode of the set of values : 5 , 9 , 5 , $x-2$, 9 is 9 , then x = ... (a) 5 (b) 57 (c) 9 (d) 11	D

- choose the correct answer :-

1) if the volume of a cube is 64 cm^3 then its lateral area ……cm^2

(8 or 4 or 64 or 96)

2) $\sqrt{8} - \sqrt{2}$ = ……. ($\sqrt{6}$, $\sqrt{2}$, 2 , 1)

3) 2 ∈ …… ( ]2,5] ,]2,5[, { 1,5 } , [1,5[ )

4) The S.S. of the inequality - x > 3 in R is ……

({ -3 } ,] 3, ∞ [,]- ∞,3 [,] - ∞ , -3 [

5) $\sqrt{(\frac{-4}{9})^2}$ = …… ($\frac{-4}{9}$, $\pm\frac{4}{9}$, $\frac{2}{3}$, $\left|\frac{-4}{9}\right|$)

6) $R_+ \cap$ [-1 , 3] = …… ( ] 0 , 3 [, [0, 3] ,]0, 3] , [0 , 3 [ )

7) If $X^3 + 9 = 1$ where X ∈ R then X = …….

(- 8 , -2 , 2 , 8)

8) If the value of a sphere = $\frac{9}{16}\ \pi$ cm^3

(3 , $\frac{4}{3}$, $\frac{3}{4}$, $\frac{1}{3}$)

9) If X = 2 + $\sqrt{5}$, Y is the conjugate number of the X then (X - y)^2 = ……

(2 $\sqrt{8}$, 20 , 4 $\sqrt{5}$, 10)

10) $\sqrt[3]{-64} + \sqrt{16}$ = …….

(Zero , 8 , - 8 , ± 8)

11) [-2 , 5 [∪] 4 , 6] = …… ([-2 , 6] ,] -2 , 6] , [-2 , 6])

12) $\sqrt{3}$ ∈ ……. ( ] 1 , 2 [,] 2 , 3 [, {–1,2} , [0 , 1])

13) if (k , 2k) satisfied 2x + 3y = 24

then k = …….. (2 , 3 , -2 , -3)

14) if the area of six faces of a cube = $54cm^2$

Then its volume = ……. Cm^3 (54 , 44 , 72 , 27)

15) $(\sqrt{7} - \sqrt{5})(\sqrt{7} + \sqrt{5}) =$ ……..

(2 , 12 , $2\sqrt{7}$, $-2\sqrt{5}$)

16) if the multiplicative inverse of the number $\sqrt{5}$ is ……

(-5 , $\frac{-1}{5}$, $\frac{5}{\sqrt{5}}$, $\frac{\sqrt{5}}{5}$)

17) $R_- =$ …….

( ] 0 , ∞ [,] -∞ , 0 [, [0 , ∞ [,] -∞ , 0])

18) If $n \in zt$, $n < \sqrt{56} < n + 1$ the n = …….

(25 , 5 , -5 , 24)

19) The irrational number located between 2 and 3 is

($\sqrt{10}$, $\sqrt{7}$, 2.5 , $\sqrt{3}$)

20) $\sqrt{9+16} = 3 +$ ……..

(4 , 8 , 2 , 22)

21) ([2 , 7] - {2,7} = …….

([1 , 6] , ϕ ,] 2 . 7 [, {5})

22) The multiplicative of $\frac{\sqrt{3}}{3}$ is …….

(- $\frac{\sqrt{3}}{6}$, $6\sqrt{3}$, $2\sqrt{3}$, $-2\sqrt{3}$)

23) The volume of a sphere whose diameter length is 6 cm = …….. cm^3

(288 , 12π , 36π , 288π)

24) [-3 , 4] - $\{-3,5\}$ = ……

( ] -3 , 4 [,] -3 , 4] ,] -3 , 5 [, [-3 , 4 [ )

Complete :

1) $(\sqrt{3}+\sqrt{2})^2 + (\sqrt{3}-\sqrt{2})^2$ = …….

2) $\sqrt{9} + \sqrt[3]{-8}$ = ……..

3) $\sqrt[3]{54} - \sqrt[3]{-16} = \sqrt[3]{\ldots\ldots}$

4) $\left|\sqrt[3]{-125}\right| = \sqrt{\ldots\ldots}$

5) if the lower limit of a set is 8 and the upper limit of the same set is 14 then the center is ……..

6) the intersection point of the ascending and descending cumulative Frequency curves determines ……..on the sets axis

7) The location of the top of frequency curve on the set axis is ……..

8) $\sqrt[3]{a^3}$ = ……

9) R - Qó = ……..

10) Q ∪ Qó = ……..

11) The S.S. of the equation

$X^2 + 1 = 0$ in R is ……

12) If $X = \frac{\sqrt{6}}{\sqrt{2}}$ then X^{-1} = ……..

13) The conjugate number of the number $\frac{1}{\sqrt{3}-\sqrt{2}}$

14) $\sqrt[3]{54} + \sqrt[3]{-2} =$ .....

Prove that

(1) $\sqrt[3]{128}+\sqrt[3]{16}-2\sqrt[3]{s4}=0$

(2) $\sqrt[3]{s4}\times\sqrt[3]{16}\div(\sqrt[3]{4}\times 6)=1$

(3) $If \times = \frac{\sqrt{6}+\sqrt{s}}{\sqrt{6}-\sqrt{s}}$

Prove that $\times + \frac{1}{\times} = 22$

(4) if

$\times = \frac{\sqrt[3]{s}+\sqrt[5]{2}}{\sqrt{s}}$

$y = \frac{\sqrt[3]{s}+\sqrt[5]{2}}{\sqrt{2}}$ Prove that $\frac{x^2+y^2}{xy}=38$

(5) if $x=\sqrt[2]{2}-\sqrt{3}, y=\frac{5}{\sqrt[2]{2}-\sqrt{3}}$

Prove that x and y are Conjugate numbers

And calculate $\frac{x+y}{xy}$

Put in the simplest form

1) $\frac{1}{4}\sqrt{80}-\sqrt{20}-\sqrt{45}+\sqrt{125}$

2) $\sqrt[3]{54}+8\sqrt[3]{\frac{-1}{4}}+5\sqrt[3]{16}$

3) $\sqrt[3]{54}+4\sqrt[3]{\frac{1}{4}}-\sqrt[3]{-2}$

4) $\frac{1}{4}\sqrt{80}-\sqrt{20}-\sqrt{45}+\sqrt{125}$

5) $\sqrt[3]{24}-6\sqrt[3]{13\frac{8}{9}}$

6) $\sqrt[3]{3}-\sqrt[3]{4}\times\sqrt[3]{6}+3\sqrt[3]{\frac{1}{9}}$

Find the s. s. fore each of the following inequalities in R in the form of interval then represent it on the number line

a) $\frac{1}{2}x+1\leq 2$

b) $1-5x<6$

c) $-3\leq -x<3$

d) $\sqrt[3]{-8}\leq x+1\leq\sqrt{9}$

e) $7x-12\leq 5x-8$

f) $4x\leq 5x+2<4x+3$

- Find the volume of a sphere if the length of its diameter is 4.2 cm
- A metallic sphere with diameter length is 6 cm. has got melt and changed. Into aright circular cylinder with base radius length 3 cm. find its height.

- Aright circular cylinder has a height 20 cm find its base radius length if its volume equals $\frac{4}{9}$ of the volume of a sphere with diameter length of 30 cm.
- using the fallowing set frequency table.

Sets	10-	20-	x-	40-	50-	60-	Total
Freq.	10	17	20	32	K+2	4	100

find

1) the value of each × and k.
2) the mean of this distribution.

using the fallowing set frequency table.

Sets	10-	20-	x-	40-	50-	60-	Total
Freq.	10	17	20	32	K+2	4	100

1) find the value of x and k
2) Graph the ascending and descending cumulative curves on one figure calculate the median.

using the fallowing set frequency table

Sets	30-	35-	45-	50-	55-	Total
Freq.	K+ 4	4 k	3k+1	3k-1	K+1	50

Find

1) the value of k
2) Graph the frequency histogram. Then find the mode.